

Remarks on the genera *Microcolpia* and *Esperiana* (Gastropoda: Melanopsidae) and their distribution in Central and Eastern Europe

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Abstract: Data on the distribution and isolated occurrences of the species and subspecies of the genera *Esperiana* and *Microcolpia* in Central and Eastern Europe are presented, illustrated and discussed. A total of eight taxa (four species and four subspecies) is listed and illustrated. *Microcolpia daudebartii biharensis* is accepted here as a valid subspecies. The conservation status of each species is updated and discussed.

Keywords: *Microcolpia*, *Esperiana*, Central Europe, Eastern Europe

Zusammenfassung: Daten über die Verbreitung und das isolierte Vorkommen der Arten und Unterarten der Gattungen *Esperiana* und *Microcolpia* in Mittel- und Osteuropa werden vorgestellt und diskutiert. Es werden insgesamt acht Taxa (vier Arten und vier Unterarten) aufgeführt. *Microcolpia daudebartii biharensis* wird hier als Unterart akzeptiert. Alle Arten und Unterarten werden auch erstmals gemeinsam abgebildet. Der Gefährdungsstatus der einzelnen Arten wird aktualisiert.

Schlüsselwörter: *Microcolpia*, *Esperiana*, Mitteleuropa, Osteuropa

Introduction

The genera *Esperiana* and *Microcolpia* are part of the Melanopsidae family. Both genera first appeared in the late Miocene and are thought to have descended from ancestral brackish-water melanopsid species native to the lakes of the Paratethys. Both genera are adapted to the seasonal, cold temperate climate of central, eastern and southeastern Europe, with some subspecies remaining confined to thermal springs (Neubauer et al. 2016).

According to MolluscaBase (MolluscaBase 2021a, 2021b), 10 taxa (species / subspecies) of *Esperiana* and *Microcolpia* are currently listed, but only seven of them are considered valid. For *Esperiana* two species are presently considered valid: *Esperiana esperi* (A. Férussac, 1823) and *Esperiana sangarica* (Schütt & Bilgin, 1974). For *Microcolpia*, there are two species, *Microcolpia parreysii* (Philippi, 1847) and *Microcolpia daudebartii* (Prevost, 1821) the latter with four presently accepted subspecies. *Microcolpia daudebartii acicularis* (Férussac, 1823) is a widely distributed species of rivers and brooklets. The other subspecies (*Microcolpia daudebartii biharensis* (Clessin, 1890), *Microcolpia daudebartii daudebartii* (Prevost, 1821), *Microcolpia daudebartii thermalis* (Brot, 1868)) are mainly isolated in thermal springs (where they

probably survived the ice ages), and they tend to be more variable than *M. d. acicularis*. In the author's opinion, the isolated occurrences and morphological differences of the shells, justify the subspecies status of *M. d. acicularis*, *M. d. biharensis*, *M. d. daudebartii* and *M. d. thermalis*.

The two genera were, due to their similarities, sometimes confused in the past. Thus, their taxonomy, e.g., the assignment of the various forms/subspecies to species/genera remained complicated. This resulted, in addition, to uncertainties concerning their distribution. In the present study, based on the examination of literature and research within collections, some taxa were found to have a wider distribution than previously reported by Glöer (2019), Neubauer et al. (2014), and Welter-Schultes (2012) was revealed. Furthermore, the conservation status of each species is updated and discussed. A summary of this research is given here.

Material and methods

Data on the distribution of species come from the author's private collection and from the Mollusc Collection of the Natural History Museum in Vienna (NHMW) as well as from the collections of Erastos Kampouropoulos (Greece), Ionela Rădac (Romania), and Zoltan Fehér



Fig. 1: **A:** Regelsbrunner Arm, Regelsbrunn, Lower Austria, 23.08.2018; **B:** Schönaauer Wasser, Schönau/Danube, Lower Austria, 1992; **C:** Spring in Kacs, Hungary, Easter 1995; **D:** River Pinios, S of Tempevalley, Greece, 07.2006. Photos: W. Fischer

(Hungary). Furthermore, existing literature was screened for occurrences. Occurrences in the GBIF database were accessed via GBIF.org on 06.10.2025. Selected specimens were photographed to document shell morphology and its variation.

Results

***Esperiana esperi* (A. Férussac, 1823)** (Fig. 3 A-E)
Esperiana roseni (Starobogatov, 1992)

Type locality: La Laybach (River Ljubljanka), Slovenia.

Distribution: **Bosnia-Herzegovina:** Sana, Una and Bosna (pers. comm. Fehér, records from the HNHM collection database), (Dmitrović et al. 2023); **Bulgaria:** Danube (Angelov 2000); **Croatia:** Korana River System (Beran 2013; Fischer, this paper), Mrežnica (Beran 2019); **Hungary:** Leitha, Danube (Fehér & Gubányi 2001; Fischer, this paper); **Moldavia:** (Balashov et al. 2013); **Romania:** Danube, Nera Gorges from upstream Dracului Lake down to Naidăs (Sîrbu et al. 2010); **Serbia:** Danube, Sava, Tisza as well as in the Drina, Velika Morava-Zapadna Morava-Južna Morava, and Timok drainages (Marković et al. 2021); **Slovakia:** Danube (Steffek 1990); **Slovenia:** Drava, Sava and Krka (Bole 1992); **Ukraine:** Danube, Dniester, Southern Buh, Dnipro (Tytar & Makarova 2015); **Türkiye:** Lake Sapanca (Schütt 1988).

Annotations: This species is distributed in the Danube drainage, and according to Bank (2006), it occurs in Austria, Croatia, Bulgaria, Hungary, Montenegro, Romania, Slovakia, Slovenia, and Ukraine. Glaubrecht (1996) cites a site in Styria/Austria in: Lann [sic!], Steiermark. However, that name is a misspelling mistake of Sann (Savinja), a river that actually flows in Slovenia (Reischütz 1998). Kantor et al. (2009) note that alleged records of this species from Russia all erroneous.

While *Esperiana esperi* occasionally appeared in the middle section of the Danube, the species is more common and frequent in the lower section and in the Danube Delta (Tomović et al. 2014).

Esperiana roseni is a synonym of *Esperiana esperi*, according to Sitnikova et al. (2017). The holotype and one paratype come from Quaternary deposits near Kulevi (formerly Redut-Kale), Georgia. In addition, there is one modern specimen without exact designation (presumably northern Türkiye) (Sitnikova et al. 2017).

Conservation status: Following the IUCN Red List, the species is valued as Least Concern for the entire distribution area (Fehér 2011). In Austria this species was considered Extinct (Reischütz & Reischütz 2007), in Slovakia as probably Extinct (Steffek 1990), in Slovenia as Vulnerable (Bole 1992). For Montenegro, there are currently no reliable confirmations. In Hungary it is protected by national



Fig. 2: **A:** River Nera, Romania, 2020; **B:** The pond at Baile 1. Mai pri Oradei, Romania, 1983, 12.07.198; **C:** Hansybach, Bad Vöslau, Lower Austria, 25.07.2018; **D:** Warme Fischa, Bad Fischau, Lower Austria, 18.10.2017. Photos: A: Ionela Rădac, B: Oldrich Kroupa, C, D: W. Fischer

nature conservation law (pers. comm. Fehér). The author is not aware of any more recent publications concerning the conservation status in individual countries.

***Esperiana sangarica* (Schütt & Bilgin, 1974)** (Fig. 3F)

Type locality: Sakarya Başı, main spring of River Sakaray near the village Çifteler, Eskişehir, Türkiye.

Distribution: known only from locus typicus.

Conservation status: Vulnerable, Red List status (Seddon 2014).

***Microcolpia daudebartii daudebartii* (Prevost, 1821)** (Fig. 4E, F)

Microcolpia schileykoi Starobogatov, Aleksenko & Levina, 1992
Microcolpia inconspicua Starobogatov, Aleksenko & Levina, 1992

Type locality: Thermal spring in Bad Vöslau, Lower Austria, Austria.

Distribution: Thermal springs and Hansybach, Bad Vöslau, Lower Austria, Austria (Fig. 2C), thermal springs and Warme Fischa, Bad Fischau, Lower Austria, Austria (Reischütz et al. 2022) (Fig. 2D). Note, that occurrences in the Drava and the Danube around Budapest listed by Glöer (2019, p. 85) are incorrect, *M. d. daudebartii* occurs only in thermal springs.

Remarks: The type locality is according to Prevost's original description. *Microcolpia d. daudebartii* is only found in the thermal springs in Bad Vöslau (Fig. 2C) and Bad Fischau (Fig. 2D) in Lower Austria (Fischer 1994, 1995). In studies before 1994 it was named *M. audebardi* (Prevost 1823), but it was already described by Prevost, 1821 as *Melanopsis daudebartii*. About new records from the thermal spring in Bad Fischau-Brunn see (Reischütz et al. 2009; Moog et al. 2021).

Microcolpia schileykoi (holotype and 33 paratypes from a thermal spring in Bad Vöslau near Vienna, Austria and the Topolcsa thermal spring (Tapolca, Miskolctapolca, Hungary) (Starobogatov et al. 1992), is a synonym of *Microcolpia daudebartii daudebartii* according to Reischütz (1994) and a synonym of *Microcolpia acicularis* according to Vinarski & Kantor (2016, there as Fagotia). The type specimens were initially identified by Schileyko and Starobogatov as *M. daudebardi* and/or *M. thermalis* (Sitnikova et al. 2017).

Microcolpia inconspicua (holotype and paratypes from a thermal spring in Bad Vöslau (Starobogatov et al. 1992) is a synonym of *Microcolpia daudebartii daudebartii* according to Reischütz (1994), and *Microcolpia acicularis* according to Vinarski & Kantor (2016).

Conservation status: Least Concern, Red List status (Fehér 2010). Vulnerable to Extinct in Austria (Reischütz & Reischütz 2007).



Fig. 3: *Esperiana esperi* (A-E), *E. sangarica* (F). **A:** Danube in Berzasca, Romania, 18.3 mm, 18.8 mm; **B:** Danube near Erd, Hungary, 18.8 mm; **C:** Danube, right shore near car ferry to Vacs, Hungary, 19.9 mm, 20.9 mm; **D:** Mossoni Duna, Duaszeg, Hungary, 21.6 mm; **E:** Korana River in Slunj, Croatia, 14.4–16.5 mm; **F:** ponds, 2 km SO Cifteler, Turkey, 9.4 + 9.9 mm. Photos: W. Fischer, from own collection

***Microcolpia daudebartii acicularis* (Férussac, 1823)**
(Fig. 5 A-E)

Microcolpia ucrainica Starobogatov, Alexenko & Levina, 1992

Type locality: “Hab. la rivière de Laybach”, today River Ljubljana at Ljubljana, Slovenia.

Distribution: The species is widely distributed in central and southeastern Europe. **Austria:** Danube east of Vienna (Fischer 1992, 1994, 2004, 2019; Fischer & Schultz 1999); **Bosnia and Herzegovina:** (Dmitrović et al. 2023); **Bulgaria:** Danube (Angelov 2000); **Croatia:** Korana river system, Save (Beran 2013); **Hungary:** Nesemann (pers. comm.) reported *M. acicularis* from the Hansági-főcsatorna (Einserkanal) and the Repce (in collection Fischer from 1993) in the southern area of Lake Neusiedl, Danube and Mossoni-Duna (Fehér & Gubányi 2001), Dráva river (pers. comm. Fehér 2025), Lajta near Mosonmagyaróvár (leg. O. Kroupa, in collection W. Fischer); **Moldavia** (Balashov et al. 2013); **Montenegro:** Cernitza (Crnica) and Orahovka (Orahovštica) (Walderdorff 1864), Lake Skadar (Wohlberedt 1909; Dhora 2004); **Romania:** Nera (Fig. 2A) from the gorges downstream up to Naidăș, in the Danube

gorges and downstream; empty shells in the Caras River (Sîrbu et al. 2010), tributary spring of the River Crisul Negru, between Ginta and Căpâlna (Smoleń & Falniowski 2009); Danube near Berzasca (Fischer this paper); **Serbia:** Danube; Sava, Tisza, Drina, Kolubara and Velika Morava-Zapadna, Morava-Južna, Morava drainages (Marković et al. 2021); **Slovakia:** Danube (Horsák et al. 2010); **Slovenia:** Kopa, Save (Bole & Slapnik 1997) Pesnica brook near Moškanjci (Neubauer et al. 2014), Krka at Velike Malence (Falnowski et al. 2020); **Ukraine:** (Tytar & Makarova 2015); **Türkiye:** Lake Sapanca (Schütt 1988; Şahin & Yildirim 2008).

Annotations: The type locality of *M. d. acicularis* is not “Les aux thermes de Weslau, pres Vienne” as stated (Prevost 1821), but the river Ljubljana in Slovenia. The (misspelled) indication “Weslau” (Vöslau) in Férussac’s original description refers to the form ““Minor, unicolor Mel. Audebartii, Prevost’.

The report from Warmbad Villach, Carinthia, Austria (Klemm 1960) is based on a confusion with *Melanoides tuberculatus* (O. F. Müller, 1774), which was already corrected by Klemm (1967). But this misinformation was again repeated in in Glöer (2019, p. 84). There is also a



Fig. 4: *Microcolpia daudebartii biharensis* (A-C), *M. daudebartii thermalis* (D), *M. daudebartii daudebartii* (E, F), *M. parreyssi* (G). **A:** Răbăgani, Romania, 14.2, 13.4, 13.8 mm; **B:** Label from collection; **C:** Original from Clessin 1890. 14.5 mm; **D:** thermal spring in Kacs, Bükk Mountain, Hungary, 13.8, 14.4, 13.7, 14.9, 16.6 mm; **E:** Warme Fische, Bad Fischau, Lower Austria, 16.8, 17.5 mm, juvenile, semiadult, adult 9.4 – 17.2 mm; **F:** Hansybach, Bad Vöslau, Lower Austria, 15, 17.3 mm; **G:** Baile 1. Mai pri Oradei, Romania, 19.6, 12.4, 15.5, 18.7 mm. Photos: A: Ivo Gallmetzer, collection of the NHM Vienna, B–G: W. Fischer, from own collection

discrepancy in Glaubrecht (1996) who noticed a site in Austria: Save, Raun. This would be a new record for Styria. However, since the Sava (Save) does not flow through Austria either, the site is probably Raven, located in Slovenia (Reischütz 1998). According to Neubauer et al. (2016), northern Italy is part of the distribution. The Italian occurrence “Hot springs of Bagni, Abano, nr. Padua

Italy” is derived from the GBIF database: “*Fagotia daudebartii*” (<https://www.gbif.org/occurrence/477051531>). Another GBIF record of *M. daudebartii* for Italy is “Voslau, Italy” (this is obviously Bad Vöslau in Austria; <https://www.gbif.org/occurrence/1882144810>). Another record for Italy from “Sava, Apulia, Italy” is most likely a confusion with the river Sava (<https://www.gbif.org/oc->

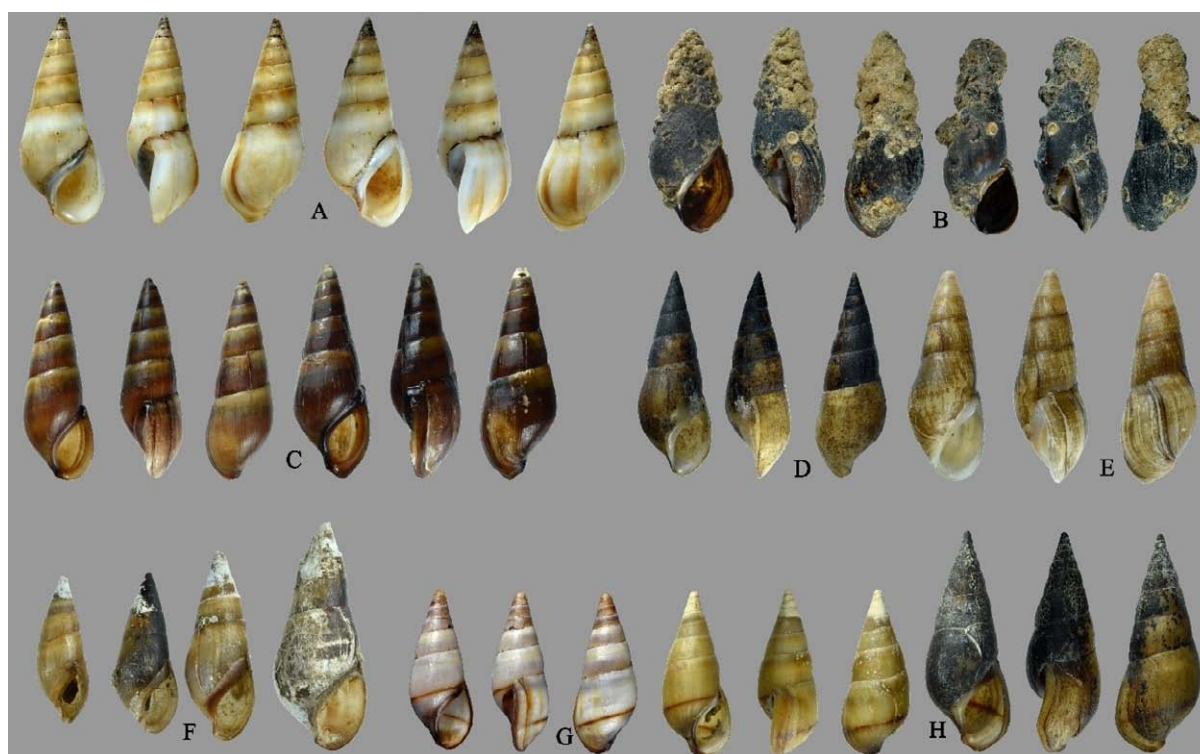


Fig. 5: *Microcolpia d. acicularis* (A-E), *M. d. stussineri* (G-H). A: Schönaauer Wasser, Schönau/Donau, Lower Austria (Fig. 1B), 19.4 mm, 19.6 mm; B: Stream Radonja, near Pavković Selo, on road Karlovac to Slunj, Croatia, 18.8 mm, 19.4 mm; C: Danube in Berzasca, Romania, 18.3 mm, 18.8 mm; D: Leitha, Mosonmagyaróvár, Hungary, 17.2 mm; E: Danube near Erd, Hungary, 17.5 mm; F: Regelsbrunn, Lower Austria (Fig. 1A), 13.3 – 21.6 mm; G: Axios river delta, Thermaikos Bay, Thessaloniki, Greece 15.7 mm; H: River Pinios, near Itea, Thessaly, Greece, 15.5 mm, 20.9 mm. Photos: W. Fischer, from own collection

[currence/1882144794](https://www.gbif.org/occurrence/1882144794)). Finally one is from Sicily, Italy, (<https://www.gbif.org/occurrence/1882144810>). Since there are no other reports for mainland Italy these findings remain questionable and require further confirmation (Alzona 1971; Manganelli et al. 1998, 2000a, 2000b). There may have been errors in transferring the data from the data sheets to the collection catalogue and from there to the organisation's website. It is also possible that incorrect information was provided for some of the locations.

Microcolpia d. acicularis can generally be found together with *Esperia esperi* in the Danube, but the frequency recently decreased considerably compared to *E. esperi* (Fehér 2006). While *Microcolpia daudebartii acicularis* occasionally appeared in the middle section of the Danube, they were more common and frequent in the lower section and in the Danube delta (Tomović et al. 2014).

Microcolpia d. acicularis and *E. esperi* were once very numerous in the Quaternary bank area of the Leitha (Fischer & Reischütz 2019). Both species are extinct in the Austrian part of this river.

Microcolpia d. acicularis (Férussac, 1823) from the Danube near Berzasca (Romania) (Fig. 5C) appears similar to *M. d. daudebartii* or *M. d. thermalis* at first sight. But the colouring is deceptive, as shell shape of these differs considerably from *M. d. daudebartii* from Austria and *M. d. thermalis* from Hungary.

The author has been observing this species in Austria for the last 30 years. Apparently, no stable populations were able to establish. A population with very large shells observed in 1993 in Schönau/Donau (Lower Austria) by the author, had disappeared after about 10 years. In 2004, *M. d. acicularis* was found again in an oxbow stream near Bad Deutsch Altenburg (Fischer 2004). The shells were almost all juveniles and much smaller than previous findings. They also disappeared in the following years until a new population was recorded in Regelsbrunn in 2019 (Fischer 2019). This population still exists.

Microcolpia ucrainica is a synonym of *Microcolpia acicularis* according to Vinarski & Kantor (2016).

Conservation status: This subspecies is considered to be Critically Endangered in Austria (Reischütz & Reischütz 2007) and is categorised as Critically Threatened in Slovakia (Steffek 1990). In Hungary it is protected by national nature conservation law (pers. comm. Zoltan Fehér).

***Microcolpia daudebartii biharensis* (Clessin, 1890)** (Fig. 4 A-C)

Hemisinus acicularis var. *biharensis* Clessin, 1890

Type locality: Thermal springs of Răbăgani, Romania.

Distribution: Romania: Thermal springs of Răbăgani.

Remarks: Original description by Clessin (1890): „Gehäuse: von glänzend schwarzer Farbe, mit 10–12 langsam zunehmenden Umgängen, die eine scharfe Spitze bilden, dann aber sich mehr erweitern, so dass der übrige Theil des Gehäuses mehr eine cylindrische Form annimmt, auf welche eine kurze kegelförmige Spitze aufsitzt. Lge. 14,5 mm., Durchm. 5,5 mm.”

Three specimens of “*Hemisinus*” *biharensis*, collected by Clessin and donated in 1894, are kept at the NHMW (Number J.-N. 22417). Clessin’s collection in the Stuttgart Museum of Natural History was largely destroyed during the Second World War. There are no specimens of *Hemisinus biharensis* in Stuttgart (pers. comm. Ira Richling). The three specimens of *Hemisinus biharensis* in the collection of the NHM Vienna are labelled as supporting material for Clessin’s description in Clessin (1890, p. 683). They can therefore be considered as syntypes.

A melanistic form, which was interpreted as *Microcolpia daudebartii acicularis* by Sîrbu & Benedek (2016) (seen as *M. d. biharensis* in this study) is still occurring in a short mesothermal rivulets in north-western Romania, close to the village of Răbăgani.

Conservation status: *M. d. biharensis* should be considered as Critically Endangered, because the land was returned to a villager who does not consider it to be part of the nature reserve and has offered it for sale to exploit the rest of the former thermal creek (Sîrbu & Benedek 2016).

***Microcolpia daudebartii stussineri* Schütt & Bilgin, 1974 (Fig. 5 G,H)**

Type locality: Pinios in Thessaly, Greece, between Larissa and Tempe valley.

Distribution: **Greece:** River Pinios in Thessaly (Schütt (1988) (Fig. 1D), in the Axios river delta, Thermaikos Bay, Thessaloniki, Greece (Fischer, this paper).

Annotations: Listed also in Sapanca Gölü (Turkey) by Şahin & Yildirim (2008), but the author of the present study tends to assign this population to the subspecies *acicularis* as mentioned by Schütt (1988). In his work, Schütt points out the Danubian character of this species and also refers to an isolated occurrence in Thessaly, Greece (Schütt & Bilgin 1974).

Conservation status: Critically Endangered in its original habitat in the river Pinios, still populations in the canals near Axios river delta, Thermaikos bay, Thessaloniki, Greece (Fischer, this paper).

***Microcolpia daudebartii thermalis* (Brot, 1868) (Fig. 4 D)**

Type locality: Thermal spring in Kács, Hungary.

Distribution: Thermal spring in Kács (Fig. 1C), Thermal bath in Eger, Eger patak, Hungary

Remarks: *Microcolpia d. thermalis* occurs in springs in the Bükk Mountains, in Hungary. Brot had received specimens from Parreyss from Miskolc in Hungary. Soós (1943) mentioned this taxon under *audebartii* from the following localities in Hungary and Romania: Tata, Görömböly-Tapolca, Kacsfürdő, Robogany.

Fehér & Gubányi (2001) list in their catalogue of the mollusc collection of the Hungarian Natural History Museum *M. d. acicularis* and *M. daudebartii thermalis* in one map under the name *Fagotia (Microcolpia) daudebartii*. This results in the difficulty of assigning the two subspecies to the places where they are found. In Tata, the springs had dried out in the 1960s due to groundwater extraction in connection with coal mining (Sîrbu & Benedek 2016). Thus, *M. d. thermalis* is now extinct in this area.

Microcolpia d. thermalis has been introduced to several thermal springs in Hungary (Fehér et al. 2006). At Malom-tó, in Budapest, the population had persisted for several years but is extinct by now. A study by Ötvös & Varga (2023) reported the presence of living specimens of *M. d. thermalis* in Kacs in 2021.

Conservation status: Vulnerable (Ötvös & Varga 2023), in Kács and Sály they are abundant (pers. comm. Zoltan Fehér).

***Microcolpia parreyssii* (Philippi, 1847) (Fig. 4G)**

Type locality: Hungary (Parreyss).

Distribution: **Romania:** Pârâul Pețea Nature Reserve from Băile 1 Mai, Bihor County (Baili Episcopiei or Bishopsbad or Püspökfürdő (Fig. 2B).

Annotations: Glöer (2002) mentioned the occurrence in Sebes-Körös and Budapest and indicated Hungary as locus typicus. Although its locus typicus is given as “Hungaria”, this refers to the above-mentioned locality, which belonged to Hungary at the time of description (Fehér et al. 2006). The present occurrences in Hungary and Bulgaria are questionable or extinct.

It is endemic to the warm-water lake of Pârâul Pețea Nature Reserve and was introduced with sediment into the Körös river (Fehér & Gubányi 2001). Other Hungarian data refer to its introduction to Budapest in Malom-tó, where it is now extinct. A report of an occurrence in Bulgaria is probably doubtful.

Georgiev (2010) found no populations of *Melanopsis parreyssi* in the thermal springs around the Pyasachnik Dam, as mentioned by Angelov (2000), and concluded that this species is extinct in the Bulgarian fauna.

Neubauer et al. (2014) attempted to document the morphological variability of recent and fossil melanopsids from Lake Pețea by means of a morphometric analysis. Two taxa from Pețea were recognized: *Microcolpia parreyssii parreyssii* and *Microcolpia parreyssii sikorai* (Bru-

sina, 1903), the latter a fossil melanopsid species. Gulyás & Sümegi (2024) noted: “Our findings also confirm the presence of various ecophenotypes of *Microcolpia* in the pond degrading our endemic species *M. parreyssii* parreyssii to a variant *M. daudebartii* parreyssii”.

Conservation status: Extinct (Sîrbu & Benedek 2016), extinct, Red List Status (pers. comm. Fehér 2025).

Discussion

Eight taxa (four species and four subspecies) of the genera *Esperiana* and *Microcolpia* from central Europe are listed of which eight are considered as valid (two *Esperiana*, six *Microcolpia*). According the present investigation of literature and collections, *M. d. daudebartii*, *M. d. thermalis*, and *M. d. biharensis* occur only in thermal waters. In contrast, *M. d. acicularis* and *M. d. stussineri* live in rivers and their tributaries. The respective (sub)species, therefore, are exposed to different environmental conditions. The acceptance as subspecies is justified by clear morphological differences and spatial separation.

Neubauer et al. (2014) interpreted their morphological analyses: “Finally, both the PCR and the measurements show that the two recent subspecies *M. daudebartii* *acicularis* and *M. daudebartii* *daudebartii* can be separated sufficiently. Although they plot close together, the two clusters do not overlap. This is best visible in the 3D plot. This result confirms the established taxonomic separation on subspecies level used by most authors”. Contrary, Falniowski et al. (2020) stated, “However, the two subspecies (*acicularis* and *daudebartii*) postulated by Glöer (2002), morphologically represent the same ranges of variability and do not differ molecularly. Thus, the distinction of *M. d. acicularis* is not justified”. This view on the variability of the two subspecies *M. d. acicularis* and *M. d. daudebartii* contradicts that of Neubauer et al. (2014).

The author cannot follow the argumentation of Falniowski et al. (2020), especially that there are no differences in morphological variability. Furthermore, DNA analyses had been performed for individuals from only three localities (Bad Vöslau, Austria, a stream between Ginta and Căpâlna, Romania and from Velike Malence, Slovenia) by Falniowski et al. (2020), revealing only subtle genetic differences. *Microcolpia d. thermalis* and *M. daudebartii* *stussineri* were not considered in that study.

All populations from thermal springs exhibit some degree of variability. There are small, large and ribbed forms. In Bad Vöslau and Bad Fischau hardly any adult shells of *M. d. daudebartii* were found, most were juvenile or semi-adult and highly variable. In contrast, in 1995 a different picture emerged for *M. thermalis* in Kacs, where the majority of snails were adult and only ribbed forms were found. *M. biharensis* also exhibits significant variability in Rabagani (pers. comm. Zoltan Fehér). Juvenile specimens

of all *M. daudebartii* subspecies cannot be identified without information on their location. The author’s collection includes a ‘ribbed’ specimen of *M. d. acicularis* from Regelsbrunn near the Danube. According to the author’s findings, *M. d. acicularis* exhibits great stability in form in the Danube region, with populations differing only slightly in size. For an accurate comparison, only adult shells should be used, with no aberrations.

Protection and Outlook

When assessing the threat status of *Esperiana* and *Microcolpia* species, it is important to consider not only their entire distribution range but also isolated and local populations, as reflected in national Red Lists or other relevant publications. Since species of *Esperiana* and *Microcolpia* have large distribution areas, threats can differ considerably. For example, *Esperiana esperi* is Extinct in Austria, and Slovakia, Critically Endangered in Hungary and Vulnerable in Slovenia (Bole 1992), yet it is listed as Least Concern by the IUCN (Fehér 2011). It is important to distinguish between small-scale units and river courses within its distribution area. The species may appear to be Endangered throughout its range, but it is already Extinct or Close to Extinction in some areas. This is just one example to bear in mind when compiling future Red Lists. *M. d. daudebartii*, *M. d. acicularis*, *M. d. thermalis*, and *M. d. biharensis* should also be evaluated in the Red List. *M. d. acicularis* lives in rivers, while the others live in thermal springs. Here, temperature differences alone must be taken into account. The thermal species also inhabit the streams flowing from the springs, but only up to a certain point — as far as the temperature allows. These species are definitely threatened by human activity. They should receive more protection and attention.

As the climate has changed massively since the past decades and rivers are becoming increasingly polluted (European Environment Agency 2024), new data about *Esperiana* and *Microcolpia* is urgently needed.

Human activities also pose a threat to species found in thermal springs. *Microcolpia parreyssii* is already extinct, highlighting the need for increased protection of the habitats of *M. d. biharensis*, *M. d. daudebartii* and *M. d. thermalis*.

Acknowledgements

Many thanks to Ivo Gallmetzer (Natural History Museum in Vienna) for taking the photos of *M. d. biharensis*. I would like to thank Erastos Kampouropoulos (Greece), Ionela Rădac (Romania) for assistance with data and shells and Nan Daniel (Romania) for help with place names. I would also like to thank Peter L. Reischütz for his help with literature and numerous discussions on the subject, and Anita Eschner and Katharina Mason (Natural History

Museum in Vienna) for access to the samples.

Many thanks to Thomas Neubauer and Zoltan Fehér as reviewer for their thoughtful suggestions and comments.

Literature

- Alzona C. (1971): Malacofauna italica. Catalogo e bibliografia dei molluschi viventi, terrestri e d'acqua dolce. A preliminary checklist of non-marine Molluscs from the Alburni Mountains, Campania, Southern Italy Parte I. Atti della Società Italiana di Scienze Naturalie del Museo Civico di Storia Naturale di Milano 111: 1–433.
- Angelov A. (2000): Mollusca (Gastropoda et Bivalvia) aquae dulcis, Catalogus Faunae Bulgaricae. Pensoft & Backhuys Publishing, Sofia, Leiden, 54 pp.
- Balashov I.A., Son M.O., Coadă V. & Welter-Schultes F.W. (2013): An updated annotated checklist of the molluscs of the Republic of Moldova. Folia Malacologica 21(3): 175–181.
- Bank A.R. (2006): Towards a catalogue and bibliography of the freshwater Mollusca of Greece. Heldia 6(1/2): 51–86.
- Beran L. (2013): Aquatic molluscan fauna (Mollusca) of the Korana River (Croatia). Natura Croatica 22(2): 223–234.
- Beran L. (2019): Aquatic molluscs of the Mrežnica River. Natura Croatica 28(1): 99–106.
- Bole J. (1992): Rdeči seznam ogroženih kopenskih in sladkovodnih mehkužcev (Mollusca) v Sloveniji. The Red List of Terrestrial and Freshwater Mollusca in Slovenia. Varstvo Narave 17: 183–189.
- Bole J. & Slapnik R. (1997): Molluscs (Gastropoda: Prosobranchia, Pulmonata; Bivalvia) of the Kočevje and Ribnica region (Slovenia). Razprave [Dissertationes], Slovenska Akademija Znanosti in Umetnosti [Academia Scientiarum et Artium Slovenica], Razred za Naravoslovne Vede [Classis 4] 38(7): 137–163.
- Clessin S. (1890): Die Mollusken-Fauna Mitteleuropas. II. Theil. Die Molluskenfauna Oesterreich-Ungarns und der Schweiz (5): 683–684.
- Dhora D. (2004): Molusqet e Liqenit të Shkodrës. Mbi molusqet e Shqipërisë: 42–57. Camaj-Pipa: Shkodër.
- Dmitrović D., Savić A., Šukalo G. & Pešić V. (2023): An Updated Checklist of Freshwater Gastropods (Mollusca: Gastropoda) of Bosnia and Herzegovina, with Emphasis on Crenobiotic Species. Diversity 15: 357. <https://doi.org/10.3390/d15030357>
- European Environment Agency (Ed.) (2024): Europe's state of water 2024. The need for improved water resilience. EEA Report 07/2024: 1–109, doi: 10.2800/02236
- Falniowski A., Heller J., Cameron R.A.D., Pokryszko B.M., Osikowski A., Rysiewska A. & Hofman S. (2020): Melanopsidae (Caenogastropoda: Cerithioidea) from the eastern Mediterranean: another case of morphostatic speciation. Zoological Journal of the Linnean Society 190(2): 483–507.
- Fehér Z. (2010): *Fagotia daudebartii*. The IUCN Red List of Threatened Species 2010: e.T155921A4866677. <https://dx.doi.org/10.2305/IUCN.UK.2010-4.RLTS.T155921A4866677.en>. Accessed on 16 April 2025.
- Fehér Z. (2011): *Fagotia esperi*. The IUCN Red List of Threatened Species 2011: e.T8441A12912641. <https://dx.doi.org/10.2305/IUCN.UK.2011-2.RLTS.T8441A12912641.en>. Accessed on 16 April 2025.
- Fehér Z. & Gubányi A. (2001): A magyarországi puhatestűek elterjedése. Az MTM (Magyar Természettudományi Múzeum) puhatestű-gyűjteményének katalógusa. MTM, Budapest.
- Fehér Z., Majoros G. & Varga A. (2006): A scoring method for the assessment of rarity and conservation value of the Hungarian freshwater molluscs. Heldia 6: 101–114.
- Fischer W. (1992): Beiträge zur Kenntnis der Molluskenfauna Österreichs, I. *Microcolpia acicularis* (A. Ferussac 1823) und *Theodoxus danubialis* (C. Pfeiffer 1828) in Ostösterreich. Club Conchylia Informationen 24(1): 12–13.
- Fischer W. (1994): Beiträge zur Kenntnis der rezenten und fossilen Melanopsidae 2. Über die Verbreitung und Entwicklung der Gattung *Esperiana* Bourguignat (Gastropoda: Prosobranchia: Melanopsidae) in Mitteleuropa. Nachrichtenblatt der Ersten Vorarlberger Malakologischen Gesellschaft 2: 14–18.
- Fischer W. (1995): Beiträge zur Kenntnis der rezenten und fossilen Melanopsidae 4. Bemerkungen und Berichtigungen zur Nomenklatur der Arten der Gattung *Esperiana* in Mitteleuropa (Prosobranchier: Melanopsidae). Club Conchylia Informationen 27(1): 2 [nicht paginiert].
- Fischer W. (2002): Bemerkungen zu Glöer (2002): Die Süßwassergastropoden Nord- und Mitteleuropas. Beiträge zur Kenntnis der rezenten und fossilen Melanopsidae VII. Nachrichtenblatt der Ersten Vorarlberger Malakologischen Gesellschaft 10: 5–7.
- Fischer W. (2004): Beiträge zur Kenntnis der Molluskenfauna Österreichs 8. Zur Verbreitung von *Corbicula fluminea* (O. F. Müller 1774) (Mollusca: Bivalvia) und *Microcolpia daudebartii acicularis* (Ferussac 1821) (Mollusca: Gastropoda) im Donaugebiet in Niederösterreich sowie Bemerkungen zu *Unio* und *Pseudanodonta* (Mollusca: Bivalvia). Nachrichtenblatt der Ersten Vorarlberger Malakologischen Gesellschaft 12: 15–18.
- Fischer W. (2019): Beiträge zur Kenntnis der österreichischen Molluskenfauna LXIV. *Microcolpia daudebartii acicularis* (A. Ferussac 1823) aus Regelsbrunn an der Donau (NÖ). Nachrichtenblatt der Ersten Vorarlberger Malakologischen Gesellschaft 26: 15–16.
- Fischer W. & Reischütz A. (2019): Beiträge zur Kenntnis der österreichischen Molluskenfauna LVI. Eine subrezente Molluskenfauna aus der Leitha in Zurndorf (Burgenland). Nachrichtenblatt der Ersten Vorarlberger Malakologischen Gesellschaft 26: 35–40.
- Fischer W. & Schultz P. (1999): Erstnachweis von *Corbicula cf. fluminea* (O. F. Müller 1774) (Mollusca: Bivalvia: Corbiculidae) aus Österreich, sowie ein Nachweis von lebenden *Microcolpia daudebartii acicularis* (Ferussac 1821) (Mollusca: Gastropoda: Melanopsidae) aus Bad Deutsch-Altenburg (NÖ, Österreich). Club Conchylia Informationen 31(3/4): 23–26.
- Georgiev D.G. (2010): In search of the thermal springs species *Bithynia rumelica* and *Melanopsis parreyssi* in Bulgaria. Tentacle 18: 16–17.
- Glaubrecht M. (1996): Evolutionsökologie und Sytematik am Beispiel von Süß- und Brackwasserschnecken (Mollusca: Caenogastropoda: Cerithioidea): Ontogenese-Strategien, paläontologische Befunde und Historische Zoogeographie. Backhuys Publ., Leiden.
- Glöer P. (2002): Mollusca I. Süßwassergastropoden Nord- und Mitteleuropas. In: Die Tierwelt Deutschlands 73. Teil 2., neu bearbeitete Auflage. ConchBooks, Hackenheim.

- Glöer P. (2019): The freshwater gastropods of the West-Palaearctis, Volume 1. Fresh- and brackish waters except spring and subterranean snails. Identification key, Anatomy, Ecology, Distribution. Published by the autor. Hetlingen.
- Gulyás S. & Sümegi P. (2024): Coordinated response of endemic gastropods to Late Glacial and Holocene climate-driven paleohydrological changes in a small thermal pond of Central Europe. *Scientific Reports* 14: 9419. <https://doi.org/10.1038/s41598-024-60185-5>.
- Horsák M., Juříčková L., Beran L., Čejka T. & Dvořák L. (2010): Komentovaný seznam měkkýšů zjištěných ve volné přírodě České a Slovenské republiky. Annotated list of mollusc species recorded outdoors in the Czech and Slovak Republics. *Malacologica Bohemoslovaca Suppl.* 1: 1–37.
- Klemm W. (1960): Mollusca, Teil VII a. In: Strouhal H. (Hrsg.) *Catalogus faunae Austriae*. Ein systematisches Verzeichnis aller auf österreichischem Gebiet festgestellten Tierarten. Österreichische Akademie der Wissenschaften 1–59.
- Klemm W. (1967): Berichtigung zum *Catalogus faunae Austriae*, Teil VIIa, Mollusca. *Mitteilungen der deutschen malakologischen Gesellschaft* 1(9): 174.
- Manganelli G., Bodon M., Favilli L., Castagnolo L. & Giusti F. (1998): Checklist delle specie della fauna d'Italia, molluschi terrestri e d'acqua dolce. Errata ed addenda, 1. *Bollettino Malacologico* 33: 151–156.
- Manganelli G., Bodon M. & Giusti F. (2000a): Checklist delle specie della fauna d'Italia, molluschi terrestri e d'acqua dolce. Errata e addenda, 2. *Bollettino Malacologico* 36: 125–130.
- Manganelli G., Bodon M., Cianfanelli S., Favilli L., Talenti E. & Giusti F. (2000b): Conoscenza e conservazione dei molluschi non marini italiani: lo stato delle ricerche. *Bollettino Malacologico* 36: 5–42.
- Marković V., Gojšina V., Novaković B., Božanić M., Stojanović K., Karan-Žnidaršić T. & Živić I. (2021): The freshwater molluscs of Serbia: Annotated checklist with remarks on distribution and protection status. *Zootaxa* 5003(1): 1–64.
- MolluscaBase eds. (2021a). MolluscaBase. *Esperiana Bourguignat*, 1877. Accessed at: <https://www.molluscabase.org/aphia.php?p=taxdetails&id=754674> on 2025-10-06
- MolluscaBase eds. (2021b). MolluscaBase. *Microcolpia Bourguignat*, 1884. Accessed at: <https://www.molluscabase.org/aphia.php?p=taxdetails&id=820468> on 2025-10-06
- Moog O., Reischütz A., Reischütz P.L. & Winkler G. (2021): Neue Fundorte von Thermal- und Quellschnecken in Bad Fischau-Brunn (Niederösterreich). *Biodiversität und Naturschutz in Ostösterreich*. BCBEA 6(1): 12–23.
- Neubauer T.A., Harzhauser M., Mandic O., Georgopoulou E. & Kroh A. (2016): Paleobiogeography and historical biogeography of the non-marine caenogastropod family Melanopsidae. *Palaeogeography, Palaeoclimatology, Palaeoecology* 444: 124–143.
- Neubauer T.A., Harzhauser M., Mandic O., Georgopoulou E. & Wrožyna C. (2014): Population bottleneck triggering millennial-scale morphospace shifts in endemic thermal-spring melanopsids. *Palaeogeography, Palaeoclimatology, Palaeoecology* 414: 116–128.
- Ötvös S. & Varga J. (2023): On the *Theodoxus prevostianus* (C. Pfeiffer, 1828) population of the Tükör Spring in Kács (Hungary). *Historia naturalis bulgarica* 45(7): 169–177.
- Prevost C. (1821): Sur une nouvelle espèce de mollusque testacé du genre Mélanopsidae. *Bulletin des Sciences, par la Société Philomatique de Paris* 1821: 136–137.
- Reischütz A., Moog O., Haring E., Kapeller R., Kruckenhauser L., Mrkvicka A.C., Reischütz P.L., Schubert H., Sattmann H., Winkler G. & Duda M. (2022): Die bemerkenswerte Molluskenfauna von Bad Fischau-Brunn, Niederösterreich. *Arianta* 9: 51–74.
- Reischütz A. & Reischütz P.L. (2007): Rote Liste der Weichtiere (Mollusca) Österreichs. In: Zülka K.P.: Rote Listen gefährdeter Tiere Österreichs Teil 2: Kriechtiere, Lurche, Fische, Nachtfalter, Weichtiere. *Grüne Reihe* 14(2): 363–433.
- Reischütz P.L. (1994): Beiträge zu Molluskenfauna Niederösterreichs, XI.: Ist Starobogatovismus die Steigerung von Bourguignatismus? *Nachrichtenblatt der Ersten Vorarlberger Malakologischen Gesellschaft* 2: 51–52.
- Reischütz P.L. (1998): Fast eine Buchbesprechung (Phantome der österreichischen Malakofauna). *Nachrichtenblatt der Ersten Vorarlberger Malakologischen Gesellschaft* 6: 7–8.
- Şahin S. & Yildirim M.Z. (2008): The Mollusk Fauna of Lake Sapanca (Turkey: Marmara) and Some Physico-Chemical Parameters of Their Abundance. *Turkish Journal of Zoology* 31: 47–52.
- Schütt H. (1988): The Danubian character of the mollusc fauna of the Sapanca Gölü (Marmara Region, Turkey). *Zoology in the Middle East*. 2: 79–85.
- Schütt H. & Bilgin F.H. (1974): Recent Melanopsines of the Aegaeon. *Archiv für Molluskenkunde* 104: 59–64.
- Seddon M.B. (2014): *Esperiana sangarica* (H. Schütt & F.H. Bilgin, 1974). The IUCN Red List of Threatened Species 2014: <https://doi.org/10.2305/IUCN.UK.2014-3.RLTS.T55002837A64516070.en>
- Sîrbu I. & Benedek A.M. (2016): Requiem for *Melanopsis parresyii* in Romania or the anatomy of a new extinction in Romania. *Tentacle* 24: 26–28.
- Sîrbu I., Sîrbu M. & Benedek A.M. (2010): The freshwater Mollusca fauna from Banat (Romania). *Travaux du Muséum National d'Histoire Naturelle "Grigore Antipa"* 53: 21–43.
- Sitnikova T.Y., Sysoev A.V. & Kijashko P.V. (2017): Species of freshwater gastropods described by Ya.I. Starobogatov: Pulmonata (Acroloxidae), Heterobranchia (Valvatidae) and Caenogastropoda (Viviparoidea, Truncatelloidea and Cerithioidea). *Proceedings of the Zoological Institute RAS* 321(3): 247–299.
- Smoleń M. & Falniowski A. (2009): Molecular phylogeny and estimated time of divergence in the Central European Melanopsidae: *Melanopsis*, *Fagotia* and *Holandriana* (Mollusca: Gastropoda: Cerithioidea). *Folia Malacologica* 17: 9–11.
- Soós L. (1943): A Kárpát-medence Molluska faunája. *Magyar Tudományos Akadémia, Budapest* 578. pp.
- Starobogatov Ya.I., Aleksenko T.L. & Levina O.V. (1992): Rody *Fagotia* i *Microcolpia* (Gastropoda Pectinibranchia Melanopsidae) i ikh predstaviteli v sovremennoj faune [Genera *Fagotia* and *Microcolpia* (Gastropoda Pectinibranchia Melanopsidae) and their representatives in present-day fauna]. *Byulleten' Moskovskogo Obshchestva Ispytateley Prirody, Otdel biologicheskij* 97(3): 57–72.
- Steffek J. (1990): Classification of molluscs of Slovakia from the point of view of their exposure to danger. *Folia Malacologica* 4: 157–162.

- Tomović J., Paunović M., Atanacković A., Marković V., Gačić Z, Csányi B. & Simić V. (2014): Biotic Typology of the Danube River Based on Distribution of Mollusc Fauna as Revealed by the Second Joint Danube Survey (2007). *Acta Zoologica Bulgarica* 66 (4): 527–537.
- Tytar V. & Makarova N. (2015): Distribution of the Freshwater Snail Species *Fagotia* (Gastropoda, Melanopsidae) in Ukraine. According to Climatic Factors. I. *Fagotia esperi*. *Vestnik zoologii* 49(4): 341–350.
- Vinarski M.V. & Kantor Y.I. (2016): Analytical catalogue of fresh and brackish water molluscs of Russia and adjacent countries. IPEE RAS, Moscow.
- Walderdorff R. (1864): Systematisches Verzeichniss der im Kreise Cattaro (Süd-Dalmatien) mit Ausnahme der Biela-Gora und in einigen angrenzenden Theilen von Montenegro und türkisch Albanien vorkommenden Land- und Süßwasser-Mollusken. *Verhandlungen der kaiserlich-königlichen zoologisch-botanischen Gesellschaft in Wien* 14: 503–514.
- Welter-Schultes F. (2012): European non-marine molluscs, a guide for species identification. Planet Poster Editions, Göttingen.
- Wohlberedt O. (1909): Zur Fauna Montenegros und Nordalbanians (Mollusken, Käfer, Isopoden, Chilopoden, Diplopoden). *Wissenschaftliche Mitteilungen aus Bosnien und der Herzegowina* 11: 585–711.

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Zeitschrift/Journal: [Arianta](#)

Jahr/Year: 2025

Band/Volume: [12](#)

Autor(en)/Author(s): Fischer Wolfgang

Artikel/Article: [Remarks on the genera Microcolpia and Esperiana \(Gastropoda: Melanopsidae\) and their distribution in Central and Eastern Europe 45-55](#)