

Travaux du Muséum National d'Histoire Naturelle «Grigore Antipa»	Vol. LIII	pp. 115–123	© Décembre 2010
---	-----------	-------------	--------------------

DOI: 10.2478/v10191-010-0008-5

**THE CATALOGUE OF THE FRESHWATER CRAYFISH
(CRUSTACEA: DECAPODA: ASTACIDAE) FROM ROMANIA
PRESERVED IN “GRIGORE ANTIPA” NATIONAL MUSEUM OF
NATURAL HISTORY OF BUCHAREST**

IORGU PETRESCU, ANA-MARIA PETRESCU

Abstract. The largest collection of freshwater crayfish of Romania is preserved in “Grigore Antipa” National Museum of Natural History of Bucharest. The collection consists of 426 specimens of *Astacus astacus*, *A. leptodactylus* and *Austropotamobius torrentium*.

Résumé. La plus grande collection d'écrevisses de Roumanie se trouve au Muséum National d'Histoire Naturelle «Grigore Antipa» de Bucarest. Elle comprend 426 exemplaires appartenant à deux genres et trois espèces, *Astacus astacus*, *A. leptodactylus* et *Austropotamobius torrentium*.

Key words: Astacidae, Romania, museum collection, catalogue.

INTRODUCTION

The first paper dealing with the freshwater crayfish of Romania is that of Cosmovici, published in 1901 (Băcescu, 1967) in which it is about the freshwater crayfish from the surroundings of Iași. The second one, much complex, is that of Scriban (1908), who reports *Austropotamobius torrentium* for the first time, from Racovăț, Bahna basin (Mehedinți county). Also Scriban made the first comment on the morphology and distribution of the species *Astacus astacus*, *A. leptodactylus* and *Austropotamobius torrentium*, mentioning their distinctive features. Also, he published the first drawings of these species (cephalothorax).

Entz (1912) dedicated a large study to the crayfish of Hungary, where data on the crayfish of Transylvania are included. Probably it is the amplest paper dedicated to the crayfish of the Romanian fauna from the beginning of the last century, with numerous data on the outer morphology, distinctive features between species, with more detailed figures and with the very first morphometric measures, and also with much detailed data on the distribution in Transylvania.

Călinescu (1929) published a paper dedicated to the Stone crayfish (*Austropotamobius torrentium*), in which he presented a more complete critical diagnosis of the species, with additional data referring to the species distribution in Romania.

Marcu (1930) gave new data on the distribution of *Astacus* species of Bucovina, from the basins of Nistru, Prut, Siret, Suceava, Moldova and from Bistrița Aurie.

Papers on the anatomy, inner morphology of the crayfish were published by Dornescu & col. (1950), regarding the structure of the gills and of the endothelial reticulum in *Astacus astacus*.

English translation by Mihaela Barcan Achim.

Pop (1965, in Băcescu, 1967) studied the parasites in the species of *Astacus*, making a systematic revision of the species of *Branchiobdella* (Oligochaeta) of Europe, *Branchiobdella astaci* Odier, 1923 (parasite on *A. leptodactylus*), *B. hexodonta* Gruber, 1883 (parasite on *Astacus astacus*, *A. leptodactylus* and *Austropotamobius torrentium*), *B. parasita* (Braun, 1805) (parasite on all Romanian Astacidae species) and *B. pentodonta orientalis* Pop, 1965 (parasite on *Astacus astacus*).

Studies of physiology were made mainly by Pora & col. (1962). They studied the summer and winter metabolism in *Astacus astacus*.

Bănărescu and Oprescu mentioned *Austropotamobius torrentium* in the Nera basin, in 1966, without any other comment.

In 1967, Băcescu published the fascicle dedicated to the decapod crustaceans in „Fauna României“ (“Romanian Fauna”). It is the most ample best documented paper, with the most complete data regarding the distribution in Romania. Also, there are comments on the species outer morphology, biology, ecology, interspecific relationships with the enemies which eat them and with the ecto- and endoparasites. The paper is completed by the first identification keys made for the Astacidae decapods, with their synonymies, with suggestive drawings and photos. For the time being, it is the only monograph paper dedicated to the crayfish species of Romania, very comprehensive and complex.

Papadopol & Diaconu (1987) gave the first biometric measures up to now for the crayfish species of western and eastern Romania, from Banat, Bicz and the Danube Delta. Their studies are completed with electrophoresis data for the two *Astacus* species.

After 2000, Pârvulescu, assistant at the Western University of Timișoara, published several papers, identification keys for crayfish of Romania. Thus, in 2007, in “Note book of habitats and species – pilot cards”, includes a card for *Austropotamobius torrentium*. In 2008, also Pârvulescu published a paper on the malacostracans, amphipods and decapods from the rivers of the area of Mehedinți Tableland, from Mehedinți and Gorj counties, mentioning again *Austropotamobius torrentium*. In 2009 (a), Pârvulescu published an “Illustrated guide for the identification of the crayfish species of Romania”, offering a welcomed book for this moment, with new recent data on the species distribution and their protection at the national level. The guide is an excellent paper for a rapid identification on the spot, with suggestive illustration, including the sexual dimorphism. And also in 2009 (b), Pârvulescu opened a website named “Racii din România” (“Crayfish of Romania”) including information on this subject, with an English variant (<http://crayfish.ro>). In 2009, Pârvulescu, Petrescu & Petrescu published a paper on the malformations of the Romanian crayfishes, in the specimens studied in their own environment as well as in those preserved in the collections of the “Grigore Antipa” National Museum of Natural History (București). Pârvulescu, Paloș & Molnar (2009) reported a new crayfish species for Romania, *Orconectes limosus* (Rafinesque, 1817), found in the Danube, at Baziaș, Moldova Nouă, Sichevița and Berzasca, an invasive species, which came from the Central-European countries (brought in Europe from North America in 1890).

Souty-Grosset et al. (2006), in the most recent monograph paper of the European crayfishes, present a truncated knowledge on the Romanian crayfish, mostly basing on the papers published in foreign languages.

The largest crayfish collection of the Romanian fauna is preserved at “Grigore Antipa” National Museum of Natural History of București (Bucharest), in

other museums of the country being preserved a few specimens, mainly where specialists interested in their study carried on their activity (e.g. Cluj, Craiova, etc).

It is the first paper dedicated to the catalogue of a crayfish collection preserved in one of the Romanian museums.

MATERIAL

The collection is based mainly on Mihai Băcescu's collecting, who worked in "Grigore Antipa" Museum from 1940 till the end of his life, in 1999. Together with different collaborators from the museum or from Romania, he gathered a number of specimens, from localities almost all over the country, minus Dobrogea (excepting the Danube Delta and littoral lakes) within the period 1935-1974. That was the moment when the first catalogue of a Romanian crayfish collection was published.

The study on this collection allowed us to create a more complete image of the crayfish distribution in Romania, much more real in comparison with that of the foreign authors' one. Of course it is about the distribution of the crayfish species in Romania within the above-mentioned period, when, theoretically, the natural ecosystems of the studied areas had another state.

Astacus astacus is protected in Romania, by several national laws and international conventions to which Romania adhered: O.U.G. 57/2007 on the regime of the protected natural areas, conservation of the natural habitats, of wild flora and fauna, completed and modified by O.U.G. 154/2008, species of community interest, included in the Annex 5 A, Bern Convention on the conservation of the wild life in Europe, adopted by Romania by the Law 13/1993, species included in the Annex 3, Directive of the European Council 92/43 EEC regarding the conservation of the natural habitats and of the wild flora and fauna – Annex 5, in IUCN Red List being considered vulnerable species.

Austropotamobius torrentium is included in several national laws and international conventions to which Romania adhered: O.U.G. 57/2007 on the regime of the protected natural areas, conservation of the natural habitats, of wild flora and fauna, completed and modified by O.U.G. 154/2008, prior species included in the Annex 3, Order MMDD no. 1964/2007 on the initiation of the protected natural area regime of the sites of the community interest of the Natura 2000 European ecological network in Romania, Bern Convention on the conservation of the wild life in Europe, adopted by Romania by the Law 13/1993, species included in the Annex 3, Directive of the European Council 92/43 EEC regarding the conservation of the natural habitats and of the wild flora and fauna – Annex 5, in IUCN Red List being also included in the vulnerable species. It is the most threatened species at the European level, more sensitive to the changes of the environment than the other ones, therefore being the most protected at this level.

Astacus leptodactylus is not protected by the national or European legislation.

RESULTS AND DISCUSSIONS

When this collection was founded (1974), Romania fauna included two genera and three species, *Astacus* Pallas, 1772, with the species *Astacus astacus* (Linné, 1758) and *A. leptodactylus* (Escholtz, 1823) and *Austropotamobius*

Skorikow, 1908, with the species *Austropotamobius torrentium* (Schrank, 1803). The material which was used for the editing of the fauna volume is presented in this catalogue.

Catalogue presentation
Family Astacidae
Genus *Astacus* Pallas, 1772
Astacus astacus (Linné, 1758)

Collection of "Grigore Antipa" National Museum of Natural History includes 150 specimens:

1 ♂ (specimen with a microchela on pereopod 1), November 1900, specimen bought from the market by Grigore Antipa, 9109; 2 ♂♂, 1 ♀, Iza River, Maramureş county, leg. Mihai Băcescu, 9111; 1 spec., Neajlov River, Mihai Bravu, Giurgiu county, 07.1976, leg. Nicolae Gâldean, DCP 17; 1 ♂, 2 ♀♀, Razelm Lake, Tulcea county, 25.05.1915, DCP 25; 6 ♂♂, 1 ♀, without locality, leg. Mihai Băcescu, DCP 30; 1 spec., Razelm Lake, Enisala, Tulcea county, 27.06.1991, leg. Nicolae Gâldean, DCP 40; 2 specs, Danube, km. 186, 7.08.1984, leg. Dan Manoleli & Nicolae Gâldean, DCP 41; 3 ♀♀, Iaşi, pond, DCP 185; 2 ♀♀ (one of them ovigerous with a microchela on pereopod 1), without data, DCP 199; 2 ♂♂, 3 ♀♀, Danube Pools, Ilfov, DCP 200; 1 ♂ (very big), 1 ♀ (small), Olt River, Miercurea Ciuc, Harghita county, 25.08, leg. Aurelian Popescu-Gorj, DCP 201; 3 ♂♂, 6 ♀♀, Şipot or Valea Gorgotel River, tributary Nera River, Caraş-Severin county, 19.07.1948, leg. Mihai Băcescu, DCP 250; 3 ♂♂, 2 ♀♀, Danube Delta, Nebunu Lake, Periprava, 12.10.1966, leg. Ştefan Negrea, DCP 267; 1 ♂, 1 ♀, Siret River, Furceni, 6.07.1941, DCP 293; 2 specs, Danube Delta, 28.07.1978, DCP 296; 1 ♂, Pufeşti, Putna, Balta Mare, 2.10.1949, leg. Mihai Băcescu, DCP 307; 1 ♂, 1 ♀, Mirajul Mare Streamlet, East to Eremitul, 30.07.1949, leg. Iosif Lepşi, DCP 311; 1 ♂, 1 ♀, Stânceni River, Mureş county, 5.10.1950, leg. Petre Bănărescu, DCP 313; 2 specs, Tămănda River, Bihor county, leg. Petre Bănărescu; 1 ♂, 3 ♀♀, Argeş River, Piteşti, Argeş county, DCP 318; 2 specs, Tismana River, Gorj county, 9.04.1945, leg. Nicolae Semen, DCP 323; 1 ♀, Nucet, Dâmboviţa county, 9.11.1949, DCP 325; 1 ♂, Topeşti River, Tismana, Gorj county, 1952, leg. Mihai Băcescu, DCP 326; 1 ♂, 3 ♀♀, Fălţiceni Lake, DCP 330; 5 ♂♂, 1 ♀, Crişul Repede River, Ciucea, Cluj-Napoca county, 10.09.1949, leg. Mihai Băcescu, DCP 331; 6 specs, Ştiubieni Lake, Dorohoi, Botoşani county, DCP 333; 9 ♂♂, 7 ♀♀, Balş Railway station pool, 17.09.1949, leg. Marcheş, DCP 334; 8 ♂♂, 4 ♀♀, Bunio streamlet, Voşloveni, Mureş county, 21.09.1949, leg. Mihai Băcescu, DCP 337; 2 ♂♂, 4 ♀♀, Voşloveni, Mureş county, 24.09.1949, leg. Mihai Băcescu, DCP 338; 5 specs, Iaşi, 08.1949, leg. Bădescu, DCP 339; 6 ♂♂, 3 ♀♀, Alunu, Mureş county, 2 ♂♂, 1 ♀, 27.09.1957, Vâlsan River, Merişani, 2 ♀♀, 5.09.1957, Someş River, Satu Mare, 4 ♂♂, 29.08.1958, leg. Petre Bănărescu, DCP 340; 1 ♀, Răstoaca River, Grumăzeşti, 17.03.1974, DCP 344; 1 ♂ (monster specimen with both chelae hypertrophied), Herăstrău Lake, Bucureşti, DCP 347; 2 ♂♂, Nera River, at the mouth of Beiu River, upstream Sasca Română, Caraş Severin county, 9.09.1948, leg. Petre Bănărescu, DCP 349; 1 ♂, 2 ♀♀, Magherniţa streamlet, Neamţ Monastery, Neamţ county, DCP 351; 1 ♂, Valea Arieşului River, Apuseni Mountains (valley with an underground flow), leg. Valeriu Butură, DCP 358; 3 ♂♂, 1 ♀, right tributary of Olt River, Govora, Vâlcea county, 08.1949, leg. Nicolae Botnariuc, DCP 360; 1 spec., without data, DCP 362; 1 spec., without data, DCP 379.

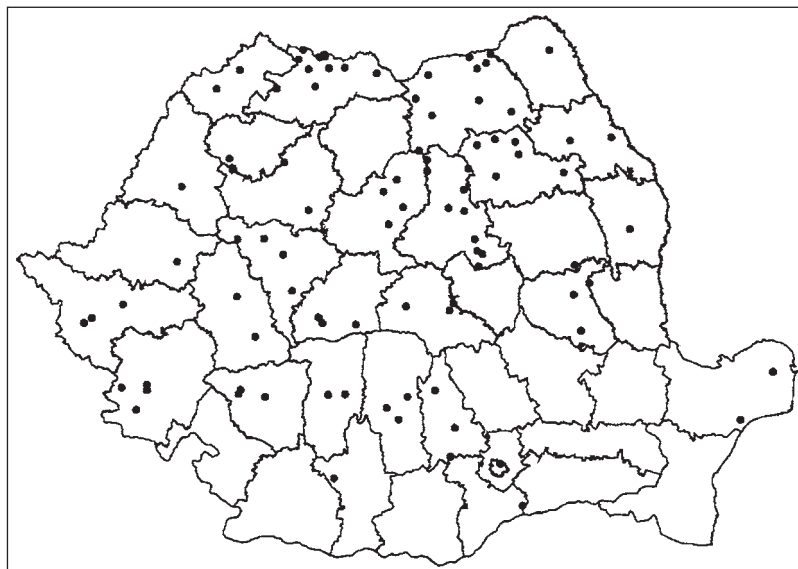


Fig. 1 - Distribution of *Astacus astacus* in Romania.

Remarks

Holdich (2002) reported the distribution of the species in the entire surface of Romania, while, recently, Souty-Grosset et al. (2006) cited it only in the Apuseni Mountains and Eastern Carpathians. According to the collection data, but also to those from literature (Băcescu, 1967; Entz, 1912; Papadopol & Diaconu, 1987), the species was distributed in almost all mountain and submountain areas, including the Danube Delta, when the material was collected (Fig. 1).

Astacus leptodactylus (Escholtz, 1823)

Collection of "Grigore Antipa" National Museum of Natural History includes 117 specimens:

1 ♂, Danube Delta, 28.06.1943, leg. Zemiancovschi, 9108; 1 ♂ (of a large size, 30 cm with the claws stretched – the Danube crayfish), Danube Delta, leg. Mihai Băcescu, 9112; 3 ♂♂, Sulina, Baia Sud, Danube Delta, 17.04.1970, leg. Mayer & Pușcașu, DCP 207; 5 ♂♂, 4 ♀♀, Boianul, Călărași, 17.09.1954, DCP 210; 1 ♂, Balta Iortmac, Băneasa, South Dobrogea, 23.07.1993, leg. Mircea Andrei, DCP 246; 2 ♀♀ (one ovigerous), Musura, Tulcea county, 26.03.1950, DCP 346; 2 ♂♂, Danube, Brăila county, 20.09.1954, DCP 335; 1 ♂, 1 ♀, Greaca pond, Giurgiu county, leg. Mihai Băcescu, 9113; 1 ♂ (of a large size), leg. Mihai Băcescu, DCP 15; 2 ♂♂, Boscoteni pond, Heleșteni, Târgu Frumos, Iași county, 28.02.1952, DCP 198; 4 ♂♂, 1 ♀ (ovigerous), Vănișor pond, Bucium, Bârnova village, Iași county, 10.03.1949, leg. Mihai Băcescu, DCP 298; 1 ♂, 1 juv., 2 ♀♀, Crișul Negru River, Tămășelu, Bihor county, 4.11.1953, leg. Petre Bănărescu, DCP 312; 1 ♂, Balătău, Bunești, Fălciu, Iași county, 16.08.1949, leg. Mihai Băcescu, DCP 317; 4 ♂♂, 2 ♀♀ ovigerous, Strâmbu pond, Bădeni, Hârlău, Iași county, 18.04.1953, leg. Mihai Băcescu, DCP 329; 5 ♂♂, 7 ♀♀ (an ovigerous female), Căldărușani, Ilfov county, 29.03.1949, DCP 204; 1 ♂, Melea, Sfântu

Gheorghe, Tulcea county, 16.04.1949, leg. Gheorghe Ulea; 1 ♂, Obilești pond, Vrancea county, 22.09.1949; 2 ♂♂, 5 ♀♀, Greier pond, Dragomirești, Ilfov county, 20.06.1949, leg. A. Crețu, DCP 302; 5 ♂♂, 4 ♀♀, Boianul, Călărași county, 17.09.1954, DCP 210; 1 ♂, Iortmac pond, Băneasa, South Dobrogea, Constanța county, 23.07.1993, leg. Mircea Andrei, DCP 246; 2 ♂♂, 2 ♀♀, Crișul Negru River, Tămășelu, Bihor county, 4.11.1953, leg. Petre Bănărescu, DCP 312; 1 ♂, 2 ♀♀, lower Prut River, 21.08.1933, leg. Mihai Băcescu, DCP 343; 4 ♀♀, Neajlov River, Mihai Bravu, Giurgiu county, 07.1976, leg. Nicolae Găldean, DCP 17; 1 ♀ (ovigerous), Razelm Lake, Enisala, Tulcea county, 27.06.1991, leg. Nicolae Găldean, DCP 40; 2 ♂♂, Danube, km. 186, 7.08.1984, leg. Dan Manoleli & Nicolae Găldean ("Stuful" Campaign), DCP 41; 1 ♂, 1 ♀, Matița, Danube Delta, 28.07.1978, DCP 296; 9 ♂♂, 7 ♀♀, Railway station pond, Balș, Olt county, 17.09.1949, DCP 334; 1 ♂, Valea Federului River, Ohaba, Alba county, 17.09.1949, leg. Mihai Băcescu, DCP 332; 1 ♂, Nucet, Dâmbovița county, 9.11.1949, DCP 325; 2 ♂♂, 3 ♀♀, Turuși, Dolj county, 8.09.1949, leg. Bădescu, DCP 339; 3 ♂♂, 1 ♀, Știubei Lake, Dorohoi, Botoșani county, DCP 333; 1 ♀, Crișul Repede River, Ciucea, Bihor county, DCP 331; 3 ♀♀, Fălticeni Lake, Suceava county, DCP 330.

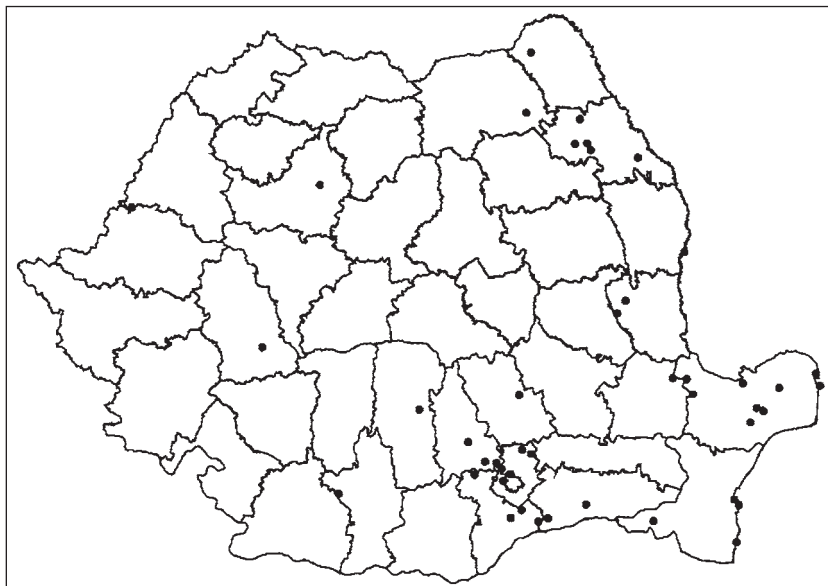


Fig. 2 - Distribution of *Astacus leptodactylus* in Romania.

Remarks

A situation, relatively similar, can be observed in this species. It has a wider distribution after Holdich (2002), and more restrictive in Souty-Grosset et al. (2006), who reported it only from eastern Romania, southern Moldova, the Danube Delta and Dobrogea. Băcescu (1967) collected it mainly from southern and eastern Romania, sporadically from Transylvania, from the lower flow of the most important rivers (Fig. 2).

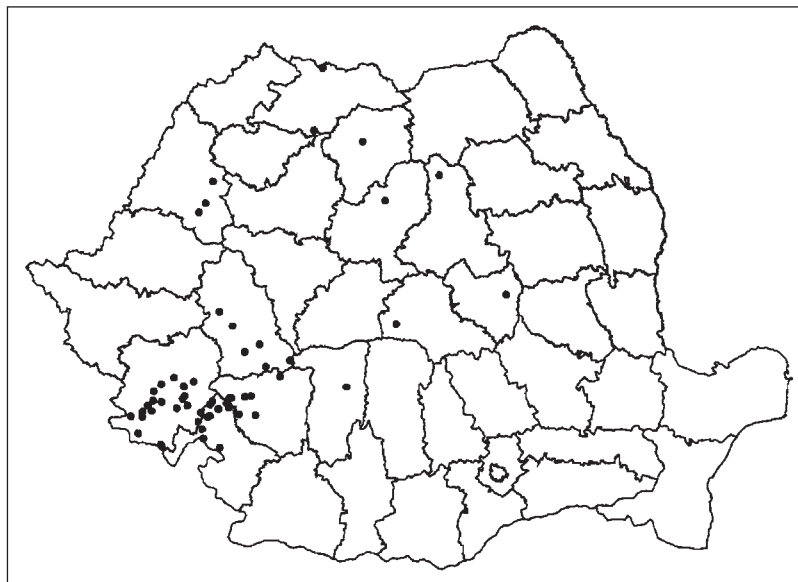


Fig. 3 - Distribution of *Austropotamobius torrentium* in Romania.

Genus *Austropotamobius* Skorikow, 1908

Austropotamobius torrentium (Schrank, 1803)

Collection of "Grigore Antipa" National Museum of Natural History includes 159 specimens:

1 ♂, 1 ♀, Pecineașca, tributary Cerna River, Turnu Severin, Caraș-Severin county, 23.10.1943, 500 m alt., leg. Mihai Băcescu, 9110; 2 ♂♂, 5 ♀♀ (1 ♀ ovigerous), Cerna River, 1935-1936, leg. Mihai Băcescu, DCP 69; 1 ♀ ovigerous, Băile Herculane, Munk stream, Caraș-Severin county, 12.05.1966, leg. Iosif Căpușe, DCP 123; 1 ♀, Valea Izei River, Sighet, Maramureș county, leg. Mihai Băcescu, DCP 168; 1 ♀, 1 ♂ Valea Beiului streamlet, tributary Nera, Cheile Beușniței, 21.09.2000, leg. Alexandru Iftime, DCP 243; 2 ♀♀, Băile Herculane, Caraș-Severin, 21.07.1963, DCP 261; 2 ♀♀, 1 ♂, Timiș River, Timiș county, DCP 294; 2 ♂♂, 5 ♀♀, Valea Șasa, tributary Crișul Negru River, Meziad, Bihor county, 13.07.1952, leg. Petre Bănărescu, DCP 304; 3 ♀♀, 2 ♂♂, Bistrița River, Gorj county, 30.10.1952, leg. Mihai Băcescu, DCP 305; 3 ♂♂, 6 ♀♀, 1 juv., Ponor streamlet, from Motru River, Gorj county, 10.09.1960, leg. Nicolae Semen, DCP 306; 4 ♀♀, 2 juvs, Someș River, Valea Mare, Moiseni, Satu Mare county, leg. Mihai Băcescu, DCP 309; 1 ♂, 2 ♀♀, Mureș River, Toplița, Bistrița-Năsăud county, 27.09.1949, leg. Iosif Cohen, DCP 310; 6 ♂♂, 5 ♀♀, 1 juv., Mureș River, Reghin, Mureș county, leg. Mihai Băcescu, DCP 316; 4 ♂♂, 12 ♀♀, Seriovia streamlet, tributary Strei River, Peștera, Hațeg, Alba county, 3.09.1946, leg. Mihai Băcescu, DCP 320; 4 ♂♂, 1 ♀, Racoș River, Brașov county, 24.09.1951, leg. Traian Orghidan, at light, DCP 322; 2 ♀♀, Sâmbăta, Făgăraș, 5.11.1949, leg. Mihai Băcescu, DCP 324; 1 ♂, Topești River, Tismana, Gorj county, 1952, leg. Mihai Băcescu, DCP 326; 2 ♂♂, 3 ♀♀, Sâmbăta streamlet, Făgăraș, 9.06.1940, leg. Aurelian Popescu-Gorj, DCP 328; 9 ♂♂, 8 ♀♀, Valea Federului River, Ohaba, Alba county, 17.09.1949, leg. Mihai Băcescu, DCP 332; 1 ♂, 2 ♀♀ (1 ♀ ovigerous),

streamlet between Morilor canal and Jieț River, 22.04.1956, leg. Mihai Băcescu, DCP 336; 5 ♂♂, 5 ♀♀, Mehadica, tributary Cerna River, Verendin, Caraș-Severin county, leg. Ion Armaș, det. Mihai Băcescu, DCP 319; 6 ♂♂, 1 ♀, Gorj county, leg. Mihai Băcescu, DCP 321; 2 ♂♂, Tismana, Gorj county, DCP 323; 4 ♂♂, 3 ♀♀, Tamaș streamlet, tributary Timiș River, Piatra Albă, Semenic, Caraș-Severin county, leg. I. Armaș, DCP 341; 2 ♂♂, 2 ♀♀, 1 juv., Valea Resii, Vipere streamlet, between Berzeasca and Cozla, Caraș-Severin county, 2.04.1951, leg. Mihai Băcescu, DCP 342; 7 ♂♂, 8 ♀♀, Cerna River, Gornenți, Mehedinți county, between Severin Mountains and Cerna Mountains, leg. Alexandru Grossu, DCP 345; 3 ♀♀, Richidia streamlet, 2 km upstream Bozovici, Caraș-Severin county, 8.07.1962, leg. Mihai Băcescu, DCP 361.

Remarks

Holdich (2002) reported it similarly, in the entire country, Souty-Grosset et al. (2006) reported it from SW Romania, basing on the unconfirmed original distribution. Pârvulescu (2007, 2008, 2009 b) reported the stone crayfish species from the area of the Mehedinți Mountains, Anina Mountains and Apuseni Mountains. We extend the known species range (at least at the collecting date of the specimens of the collection, 1974) to the western side of the Southern Carpathians, Transylvania and Maramureș (Fig. 3).

ACKNOWLEDGEMENTS

All our gratitude to Lucian Pârvulescu (Western University, Faculty of Chemistry, Biology, Geography, Timișoara) for the specialised papers he offered; to Dr. Alexandru Iftime, for making the maps, to Petruța Dumitrică ("Grigore Antipa" National Museum of Natural History) for her help in working in the collection; to the anonymous referees of this paper, to Mihaela Achim („Grigore Antipa" National Museum of Natural History) for translating the paper and, not the least, to Dr. Angela Petrescu, for her consistent moral support.

CATALOGUL COLECȚIEI DE DECAPODE ASTACIDE (CRUSTACEA: DECAPODA: ASTACIDAE) DIN ROMÂNIA, AFLATĂ ÎN MUZEUL NAȚIONAL DE ISTORIE NATURALĂ „GRIGORE ANTIPA“ DIN BUCUREȘTI

REZUMAT

Cea mai mare colecție de raci (Crustacea, Astacidae) din România se găsește la Muzeul Național de Istorie Naturală "Grigore Antipa" (București).

Aceasta conține 426 exemplare aparținând la două genuri și trei specii, *Astacus astacus*, *A. leptodactylus* și *Austropotamobius torrentium*.

Materialul a fost colectat în perioada 1933-2000 de Mihai Băcescu și colaboratorii acestuia din aproape toată țara.

Sunt date primele hărți mai complete ale răspândirii în România a acestor specii, realizate pe baza datelor din colecție și din literatură (Scriban, 1908; Entz, 1912; Băcescu, 1967; Papadopol & Diaconu, 1987).

LITERATURE CITED

- BĂCESCU, M., 1967 - Decapoda. *In*: Fauna Republicii Socialiste România, Crustacea, 4 (9): 209-219. (in Romanian)
- BĂNĂRESCU, P., T. OPRESCU, 1966 - Ihtiofauna râului Nera și ocrotirea ei. Ocrotirea naturii, 15: 139-148. (in Romanian)
- CĂLINESCU, R., 1929 - *Astacus Torrentium* Schrank, în Munții Olteniei. Revista Arhivele Olteniei, 41-42: 106-109. (in Romanian)

- DORNESCU, GH. T., E. ROMAN, 1950 - Sistemul reticulo-endotelial la rac (*Astacus fluviatilis*). Buletinul Științific al Academiei R. P. Române, Seria Biologie, 2 (6): 323-333. (in Romanian)
- ENTZ, G., 1912 - Über die Flußkrebse Ungarns. Mathematische Naturwissenschaftlichen Berichte aus Ungarn, 30 (2): 67-125.
- HOLDICH, D. M., 2002 - Present distribution of crayfish in Europe and some adjoining countries. Bulletin Français de Pêche et Pisciculture, 367 (4): 611-650.
- MARCU, O., 1930 - Die Süßwasserdekopoden und ihre Verbreitung in der Bukowina. Verhandlungen und Mitteilungen der Siebenbürgischen Vereins für Naturwissenschaften in Hermannstad, Jahrgang 1929/1930, 79/80: 86-88.
- PAPADOPOU, N., G. DIACONU, 1987 - Contributions to the knowledge of the morphology of the astacid crayfishes from Romania. Travaux du Muséum d'Histoire Naturelle "Grigore Antipa", 29: 55-62.
- PÂRVULESCU, L., 2007 - *Austropotamobius torrentium*. Pp. 47-49. In: I. Combroux, E. Thiry, T. Toia (eds.), Caiet de habitate și specii - Fișe pilot. Edit. Balcanic Timișoara, România.
- PÂRVULESCU, L., 2008 - The aquatic malacostracean fauna (Crustacea: Malacostraca) from the Mehedinți Plateau Rivers. Studia Universitatis Babeș - Bolyai, seria Biologia, 53 (2): 17-24.
- PÂRVULESCU, L., 2009 a - Ghid ilustrat pentru identificarea speciilor de raci din România. Edit. Tempus, Timișoara, 26 pp. (in Romanian)
- PÂRVULESCU, L., 2009 b - Racii din România. <http://www.crayfish.ro> (in Romanian)
- PÂRVULESCU, L., C. PALOȘ, P. MOLNAR, 2009 - First record of the spiny-cheek crayfish *Orconectes limosus* (Rafinesque, 1817) in Romania. North-Western Journal of Zoology, 5 (2): 424-428.
- PÂRVULESCU, L., A. PETRESCU, I. PETRESCU, 2009 - Abnormal colors and shapes of the body and appendages of *Austropotamobius torrentium* (Schrank, 1804) in Romania. Crayfish News, 31 (3): 6-8.
- PORA, A. E., D. RUȘDEA, M. GHIRCOIAȘU, N. FABIAN, 1962 - Deosebiri metabolice între racii de iarnă și racii de vară (*Potamobius fluviatilis*). Studia Universitatis Babeș-Bolyai, Seria Biologia, 1: 137-146. (in Romanian)
- SCRIBAN, I. A., 1908 - Note sur les Ecrevisses de Roumanie. Annales Scientifiques de l'Université Jassy, 5 (1): 80-83.
- SOUTY-GROSSET, C., D. M. HOLDICH, P. NOËL, G. D. RAYNOLDS, P. HAFFNER, 2006 - Atlas of Crayfish in Europe. Publications Scientifiques du Muséum national d'Histoire naturelle, Paris, 64: 1-187.

Received: March 1, 2010

Accepted: September 6, 2010

Muzeul Național de Istorie Naturală "Grigore Antipa"

Șos. Kiseleff nr. 1, 011321 București 2, România

e-mails: iorgup@antipa.ro

anapetrescu@antipa.ro