

## THE ALPINE NEWT *Ichthyosaura alpestris* IN ALMĂJ MOUNTAINS, SOUTH-WESTERN ROMANIA – 10 KM UPSTREAM THE DANUBE

CICORT-LUCACIU Alfred-Ștefan, BONDAR Alexandra,  
COVACIU-MARCOV Severus-Daniel

**Abstract.** In the spring of the year 2017, we have identified the alpine newt *Ichthyosaura alpestris* in Almăj Mountains from the Banat Mountains, in south-western Romania, upstream Eșelnița locality. This seems the first record for the region. *I. alpestris* was present in a small aquatic habitat, at 462 m altitude, approximately 10 km upstream the Danube, in a region with numerous beech forests.

**Keywords:** distribution, amphibians, mountains, low altitude.

**Rezumat. Tritonul de munte *Ichthyosaura alpestris* în Munții Almăjului, sud-vestul României – 10 km în amonte de Dunăre.** În primăvara anului 2017 am identificat tritonul de munte *Ichthyosaura alpestris* în Munții Almăjului din Munții Banatului, în sud-vestul României, în amonte de localitatea Eșelnița. Aceasta pare prima semnalare a speciei în regiune. *I. alpestris* a fost prezent într-un habitat acvatic mic, la 462 m altitudine, la aproximativ 10 km în amonte de Dunăre, într-o regiune cu întinse păduri de fag.

**Cuvinte cheie:** distribuție, amfibieni, munți, altitudine redusă.

### INTRODUCTION

In the most recent update regarding the distribution of the amphibians in Romania, five newt species were mentioned in the country (COGĂLNICEANU et al., 2013). Among them, only one is distributed approximately in the entire country (COGĂLNICEANU et al., 2013). The others have more narrow ecological demands and, as a consequence, more reduced distribution ranges (FUHN, 1960; COGĂLNICEANU et al., 2000). Even if in the last 20 years in Romania numerous data were accumulated on amphibian distribution, the information is biased between different regions of the country and between species (COGĂLNICEANU et al., 2013). One of the newt species with relatively few records in Romania is *Ichthyosaura alpestris* (Laurenti, 1768), a species with a distribution range limited to the Carpathian Mountains in the country (COGĂLNICEANU et al., 2013). According to the older Romanian literature, the lowest distribution limit of the species in the country was at 500 meters (FUHN, 1960; COGĂLNICEANU et al., 2000). Nevertheless, *I. alpestris* was identified at extremely low altitudes in the Romanian Western Carpathians, in the Apuseni and Poiana Ruscă Mountains (COVACIU-MARCOV et al., 2009a, 2010). Although its distribution is well known regardless the altitude in the northern massifs of the Romanian Western Carpathians, *I. alpestris* seems to be very rare in the southern massifs, in the Banat Mountains, region where according to the recent update, there are only six records (COGĂLNICEANU et al., 2013). Five of them are in the same massif (Semenic Mountains); the species seems to be completely absent from certain areas from the Banat Mountains (COGĂLNICEANU et al., 2013). This absence seems difficult to be accepted, because even if in the region only populations with a normal altitudinal limit should be present, the mountains where they seem to be absent are sometimes higher than 1000 m altitude (TUFESCU, 1986), so the species have no apparent reason for absence. Thus, this note mentions the presence of *I. alpestris* in a massif from the southern part of the Romanian Western Carpathians, in which it has not been mentioned previously.

### MATERIAL AND METHODS

The fieldwork was realized on April 1, 2017. We investigated the area situated upstream Eșelnița locality, in the western part of Mehedinți County. We made an approximately 20 km length transect in Almăj Mountains, following the Eșelnița River up to its higher area, at the limit between Mehedinți and Caraș-Severin Counties. The valley is followed by a forest road used also by a surface coal mine situated on the top of Almăj Mountains. The newts were captured with a round net fixed on a long handle, a net used in other studies on newts (e.g. PABIJAN et al., 2009; BOGDAN et al., 2011, 2012). The newts were captured from aquatic habitats, some being photographed in an aquarium and immediately set free in their habitats.

### RESULTS

*I. alpestris* was identified in Almăj Mountains, at approximately 10 km upstream Eșelnița locality (Fig. 1), in the area where the forest road started to ascend abruptly. Near the road, there is an artificial open area, with two abandoned buildings, which probably served in the past to forestry purposes. Except these, the area is covered by large forests, dominated by beech; the forests cover continuously the 10 km from the locality. Along the forest road there are two ponds of approximately 2m<sup>2</sup> surfaces and 0.5 m water depth, surrounded by bulrush. In these wetlands, we identified one *I. alpestris* male (Fig. 2), 8 males and 3 females of *Lissotriton vulgaris* (Linnaeus, 1758), tens of *Salamandra salamandra* (Linnaeus, 1758) larvae, and some *Rana dalmatina* Bonaparte, 1839 and *R. temporaria* Linnaeus, 1758 spawns. The habitat is situated at 462 m altitude.

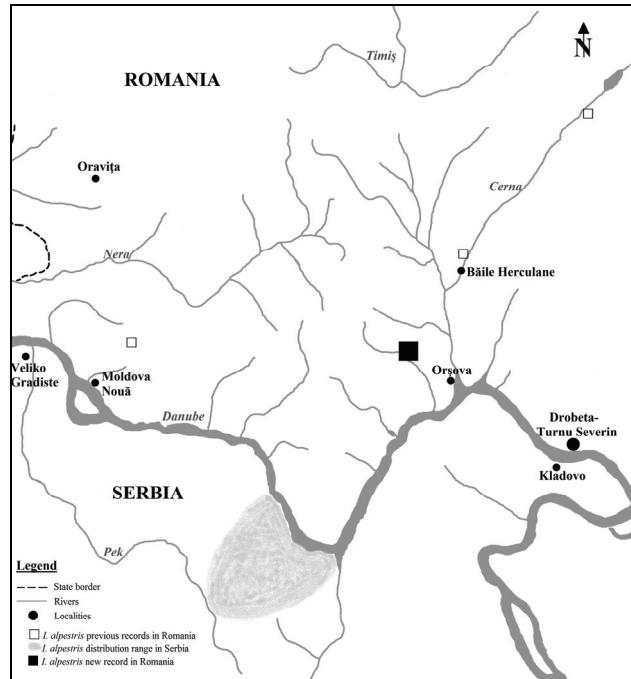


Figure 1. The distribution of *I. alpestris*: old records (Romania – COGĂLNICEANU et al., 2013; Serbia – VUKOV et al., 2013) and the new record in southwestern Romania.



Figure 2. *I. alpestris* male from the habitat upstream Eșelnița (original).

## DISCUSSIONS

According to the literature this is the first record of *I. alpestris* in Almăj Mountains, at a distance of only approximately 10 km upstream the Danube (COGĂLNICEANU et al., 2013). Also, this seems to be the first record of the alpine newt in Mehedinți County (COGĂLNICEANU et al., 2013). The species has not been previously mentioned in Almăj Mountains, but it was not recorded either on the Danube Gorge (FUHN, 1975; IFTIME, 2005; COVACIU-MARCOV et al., 2009b). East of the Timiș-Cerna Corridor, in the Southern Romanian Carpathians, rather close to the Danube, *I. alpestris* was mentioned at Herculane Resort (FUHN, 1960), where it was not re-identified, even if herpetological studies were performed in the area (SAHLEAN et al., 2008). However, it was recently recorded on the Cerna valley area, at approximately 30 km upstream Herculane Resort (IFTIME, 2005). Moreover, the species seems to be rare in the higher areas of the southern bank of the Danube, in Serbia (VUKOV et al., 2013). Thus, in Serbia, *I. alpestris* was identified in the region only in a single area, which is situated westwards of Eșelnița area (VUKOV et al., 2013). With all that, the aspect of the Almăj Mountains higher area is advantageous for this species, and the small sized aquatic habitats are characteristic to it (e.g. COVACIU-MARCOV et al., 2009a).

Taking into account the large forests, characteristic for this species (e.g. NEČAS et al., 1997; COVACIU-MARCOV et al., 2009a), *I. alpestris* is probably more widespread in the region, especially because Almăj Mountains have more than double of the altitude where it was recorded (TUFESCU, 1986). Probably, the absence of the previous record of the species in the region is due to the lack of the studies on amphibians in Almăj Mountains, the herpetological efforts being focused straight on the Danube Gorge area (COGĂLNICEANU et al., 2013), the high areas of Almăj Mountains being ignored. This situation is probably due to the numerous southern fauna elements in the Danube Gorge (e.g. FUHN, 1975; COVACIU-MARCOV et al., 2009b), which probably were more interesting for the herpetologists, than the higher areas of the neighboring mountains. Thus, probably the species is better represented in the Banat Mountains, taking into account its abundance in the northern part of the Romanian Western Carpathians (COVACIU-MARCOV et al., 2009a, 2010).

The altitude where the species was identified, even if is lower than its lower altitudinal limit previously indicated in literature, is still close to this (FUHN, 1960; COGĂLNICEANU et al., 2000). Releasing any opinion about the lower distribution limit of this species in Almăj Mountains is difficult. Hence, in the Danube Gorge region and its surroundings, many amphibians were recorded at lower altitude than anywhere in Romania (e.g. COVACIU-MARCOV et al., 2009b, 2017). The situation is also valid in the case of other groups, both plants and animals, the Danube Gorge being recognized for a long time as an area where many mountain species at unusually low altitudes cohabit with southern elements, which are situated almost at their northern distributional range limit (PAȘCOVSCHI, 1956). In the past mountain fish species descended in the Cerna River down to its confluence with the Danube (BĂNĂRESCU et al., 1975). The fact that *I. alpestris* was not identified at more reduced altitudes does not mean that it lacks from the region, but just that it has not been found yet. The Danube Gorge area is considered to be very harsh for newts, the very steep slopes here does not shelter the aquatic habitats they require (COVACIU-MARCOV et al., 2009b), fact which has lead the very few records of newts in the region (e.g. COGĂLNICEANU et al., 2013). Anyway, our record shows the necessity for studies, which could establish the species distribution range, not only in Almăj Mountains but also in the Banat Mountains, region with less data on newts than many other regions of the country (COGĂLNICEANU et al., 2013).

In Western Europe, newts are considered in decline, which differs by the species (e.g. DENOËL, 2012). On the contrary, in Romania, a country from Eastern Europe, even now there are discovered first record species for whole geographic units. The extended forests in the area are advantageous for the alpine newts, which are characteristic for this kind of habitats (e.g. COVACIU-MARCOV et al., 2009a). Even if the region is still covered with large forests, nevertheless there are numerous forest exploitations, which could threaten the habitats of this rare species. Our record proves that even if many data were accumulated in the last period (COGĂLNICEANU et al., 2013), there are still gaps in the knowledge about the distribution of this newt, considered a model species for the study of evolutionary processes (see in: RECUERO et al., 2014).

## REFERENCES

- BĂNĂRESCU P., GHERACOPOL O., PETCU A. 1975. Pisces – Cyclostomata și Osteichthyes. In: Ionescu, M. (ed.), *Fauna. Grupul de cercetări complexe „Porțile de Fier”*. Seria monografică. Edit. Academiei Republicii Socialiste România. București: 298-300.
- BOGDAN H. V., IANC R. M., POP A. N., SÖLÖSI R. Ș., POPOVICI A. M., POP I.-F. 2011. Food composition of an *Ichthyosaura alpestris* (Amphibia) population from the Poiana Rusca Mountains, Romania. *Herpetologica Romanica*. University of Oradea Publishing House. Oradea. **5**: 7-25.
- BOGDAN H. V., BADAR L., GOILEAN C., BOROS A., POPOVICI A. M. 2012. Population dynamics of *Triturus cristatus* and *Lissotriton vulgaris* (Amphibia) in an aquatic habitat from Banat region, Romania. *Herpetologica Romanica*. University of Oradea Publishing House. Oradea. **6**: 41-50.
- COGĂLNICEANU D., AIOANEI F., BOGDAN M. 2000. *Amfibienii din România, Determinator*. Edit. Ars Docendi. Bucharest. 99 pp.
- COGĂLNICEANU D., SZÉKELY P., SAMOILĂ C., IOSIF R., TUDOR M., PLĂIAȘU R., STĂNESCU F., ROZYŁOWICZ L. 2013. Diversity and distribution of amphibians in Romania. *ZooKeys*. Pensoft Publishers. Sofia. **296**: 35-57.
- COVACIU-MARCOV S.-D., CICORT-LUCACIU A.-Ș., SAS I., ILIEȘ D.C., JOSAN I. 2009a. Explaining the presence of low altitude *Mesotriton alpestris* (Laurenti, 1768) populations from the Apuseni Mountains, Western Romania – a possible zoogeographical scenario. *North-Western Journal of Zoology*. University of Oradea Publishing House. Oradea. **5**(2): 406-419.
- COVACIU-MARCOV S.-D., CICORT-LUCACIU A.-Ș., GACEU O., SAS I., FERENȚI SARA, BOGDAN H. V. 2009b. The herpetofauna of the south-western part of Mehedinți County, Romania. *North Western Journal of Zoology*. University of Oradea Publishing House. Oradea. **5**(1): 142-164.
- COVACIU-MARCOV S.-D., ILIEȘ A., BOGDAN H.-V., CICORT-LUCACIU A.-Ș., FERENȚI SARA. 2010. *Ichthyosaura (Mesotriton) alpestris* Low Altitude Population from Poiana Ruscă Mountains, Western Romania, Another Apuseni Mountains Scenario? *Pakistan Journal of Zoology*. Smith and Franklin Academic Publishing Corporation. Ash Vale. **42**(6): 781-785.

- COVACIU-MARCOV S.-D., SAS-KOVÁCS I., CICORT-LUCACIU A.-Ş. 2017. Lower than the lowest! Relict *Salamandra salamandra* population in Stârmina Hill, south-western Romania. *Russian Journal of Herpetology*. Folium Publishing Company. Moscow. **24**(1): 81-83.
- DENOËL M. 2012. Newt decline in Western Europe: highlights from relative distribution Changes within guilds. *Biodiversity and Conservation*. Springer International Publishing. Berlin. **21**: 2887-2898.
- FUHN I. 1960. *Fauna R.P.R., Amphibia*. Edit. Academiei R. P. R. Bucureşti. **14**(1). 288 pp.
- FUHN I. E. 1975. Amphibia și Reptilia. In: Ionescu, M. (ed.), *Fauna. Grupul de cercetări complexe "Porțile de Fier". Seria monografică*. Bucureşti. Edit. Academiei Republicii Socialiste România. 301-303.
- IFTIME A. 2005. New observations on the herpetofauna from Domogled-Valea Cernei National Park and Porțile de Fier Naturla Park (Romania). *Travaux du Muséum National d'Histoire Naturelle «Grigore Antipa»*. "Grigore Antipa" National Museum of Natural History, Bucharest. **48**: 327-337.
- NEČAS P., MODRÝ D., ZAVADIL V. 1997. *Czech Recent and Fossil Amphibians and Reptiles*. Edit. Chimaira, Frankfurt am Main. 94 pp.
- PABIJAN M., ROŽEJ E., BONK M. 2009. An isolated locality of the alpine newt (*Mesotriton alpestris* Laurenti, 1768) in central Poland. *Herpetology Notes*. Societas Europea Herpetologica. **2**: 23-26.
- PAȘCOVSCHI S. 1956. Câteva considerații biogeografice asupra Munților Banatului. *Ocotirea Naturii*. Academia Română, Bucureşti. **2**: 111-134.
- RECUERO E., BUCKLEY D., GARCÍA-PARÍS M., ARNTZEN J.W., COGĂLNICEANU D., MARTÍNEZ-SOLANO I. 2014. Evolutionary history of *Ichthyosaura alpestris* (Caudata, Salamandridae) inferred from the combined analysis of nuclear and mitochondrial markers. *Molecular Phylogenetics and Evolution*. Elsevier. Amsterdam. **81**: 207-220.
- SAHLEAN C. T., STRUGARIU A., ZAMFIRESCU Ş., PAVEL A. G., PUȘCAȘU C. M., GHERGHEL I. 2008. A herpetological hotspot in peril: Anthropogenic impact upon the amphibian and reptile populations from Băile Herculane tourist resort, Romania. *Herpetologica Romanica*. University of Oradea Publishing House. Oradea. **2**: 37-46.
- TUFESCU V. 1986. *Harta R. S. România*. Edit. Didactică și Pedagogică. Bucureşti.
- VUKOV T., KALEZIĆ M. L., TOMOVIĆ L., KRIZMANIĆ I., JOVIĆ D., LABUS N., DŽUKIĆ G. 2013. Amphibians in Serbia: Distribution and Diversity Patterns. *Bulletin of the Natural History Museum in Belgrade*. Natural History Museum in Belgrade. **6**: 90-112.

**Cicort-Lucaciu Alfred-Ştefan, Bondar Alexandra, Covaciu-Marcov Severus-Daniel**

University of Oradea, Faculty of Sciences, Department of Biology; 1, Str. University Oradea 410087, Romania  
Corresponding author: severcovaciul@gmail.com

Received: March 31, 2017

Accepted: May 27, 2017