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Araştırma Makalesi / Research Paper

Re-description of the *Pseudorientalia natolica* (Küster, 1852) and a Discussion on the Disappearing of the *Falsibelgrandiella bunarica* (Radoman, 1973) Living in the Same Locality in Bursa, Turkey

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ABSTRACT

With this study, *Pseudorientalia natolica* was re-found from type locality and conchological and anatomical characters of the topotypes have been studied. But there was no specimen of the *Falsibelgrandiella bunarica* which is living together recorded in the same locality. Also, the reasons of the existence or disappearance of the *F. bunarica* is discussed.

Anahtar Kelimeler: Re-description, *Pseudorientalia natolica*, *Falsibelgrandiella bunarica*, Topotype, Extinction

Pseudorientalia natolica (Küster, 1852)'nın Yeniden Tanımlanması ve Aynı Lokalitede Yaşayan (Bursa) *Falsibelgrandiella bunarica* (Radoman, 1973) Türünün Ortadan Kaybolması Üzerine Bir Tartışma

ÖZ

Bu çalışma kapsamında, *Pseudorientalia natolica* tip lokalitesinde tekrar tespit edilmiş ve topotiplerinin konkolojik ve anatomik karakterleri çalışılmıştır. Fakat aynı lokalitede birlikte yaşayan *Falsibelgrandiella bunarica* bireylerine rastlanmamıştır. Ayrıca *F. bunarica*'nın yok oluş veya kayboluş sebepleri de tartışılmıştır.

Keywords: Yeniden tanımlama, *Pseudorientalia natolica*, *Falsibelgrandiella bunarica*, Topotip, Tür yitimi

INTRODUCTION

Radoman, (1973) was described the species *Pseudorientalia anatolica* which was known before *Paludina natolica* (Küster, 1852) and *Pseudamnicola natolica* (Schütt, 1965). The type locality of the genus is Bursa Gedelek village, Pınarbaşı spring and it is known from other localities of the NW of the Turkey. Except this, another *Pseudorientalia* species *Pseudorientalia ceriti* is described in Kahramanmaraş Çağlayancerit (Gürlek, 2017). This genus also known Northern Greece and Samos Island (Glöer and Georgiev, 2012; Szarowska et al., 2014). *Falsibelgrandiella bunarica* was also described in the same locality together. *F. bunarica* is monotypical species and there is no species in the same genus. Radoman described the species in 1973 but he gave anatomical drawings in 1983. The aim of this study is to learn existence on the locality and find out the conchological and anatomical characters of this two species living together.

MATERIAL AND METHODS

Snails were collected from the stones by hand from Bursa Vedelek village Pınarbaşı spring in 2015 (Figure 1). They preserved in plastic tubes including 80% ethanol. Dissections and measurements of the shells and genital organs were carried out using a stereo microscope (Olympus SZX7) and photographs were taken with a digital camera system (Olympus DP26). The topotypes are deposit in private collection of the author. Comparisons were made according to Radoman (1973 and 1983).

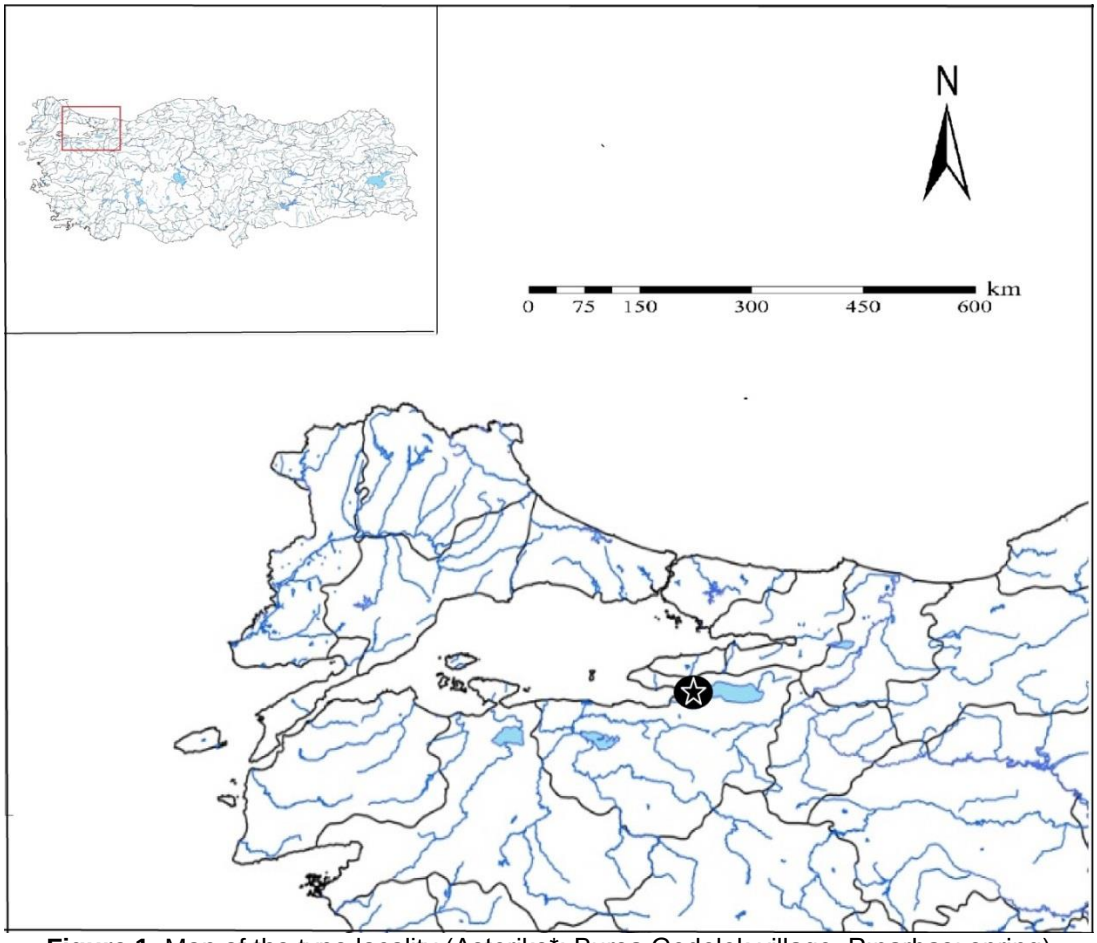

Figure 1. Map of the type locality (Asteriks*: Bursa Gedelek village, Pınarbaşı spring)

RESULTS AND DISCUSSION

Genus: *Pseudorientalia* (Radoman, 1973)
Pseudorientalia natolica (Küster, 1852) (Figure 2)

Material examined: 19 exx. From type locality.

Type locality: Bursa Gedelek village, Pınarbaşı spring, 17.9.2015, M.E.Gürlek leg. [179 m asl, N 40°27'02.53″ E 29°15'32.03″]

Description: Shell height 2.81 mm, width 1.83 mm. Aperture height 1.34 mm width 0.97 mm (topotype). The yellowish to brown shell conical with 3.5-4 whorls which has deep suture. The umbilicus slit-like. Aparture ovoid, angled at the top and clear whitish peristome at the columella. The columellar margin thick and outher lip thin. The operculum deep yellow (Figure 2:1,2,3).

Soft parts: The penis long and dark colored. It is warped to the distal part. Mantle and head white and pigmented, eye spots visible (Figure 2:4,5).

Habitat: Natural spring water. The specimens were collected from stones.

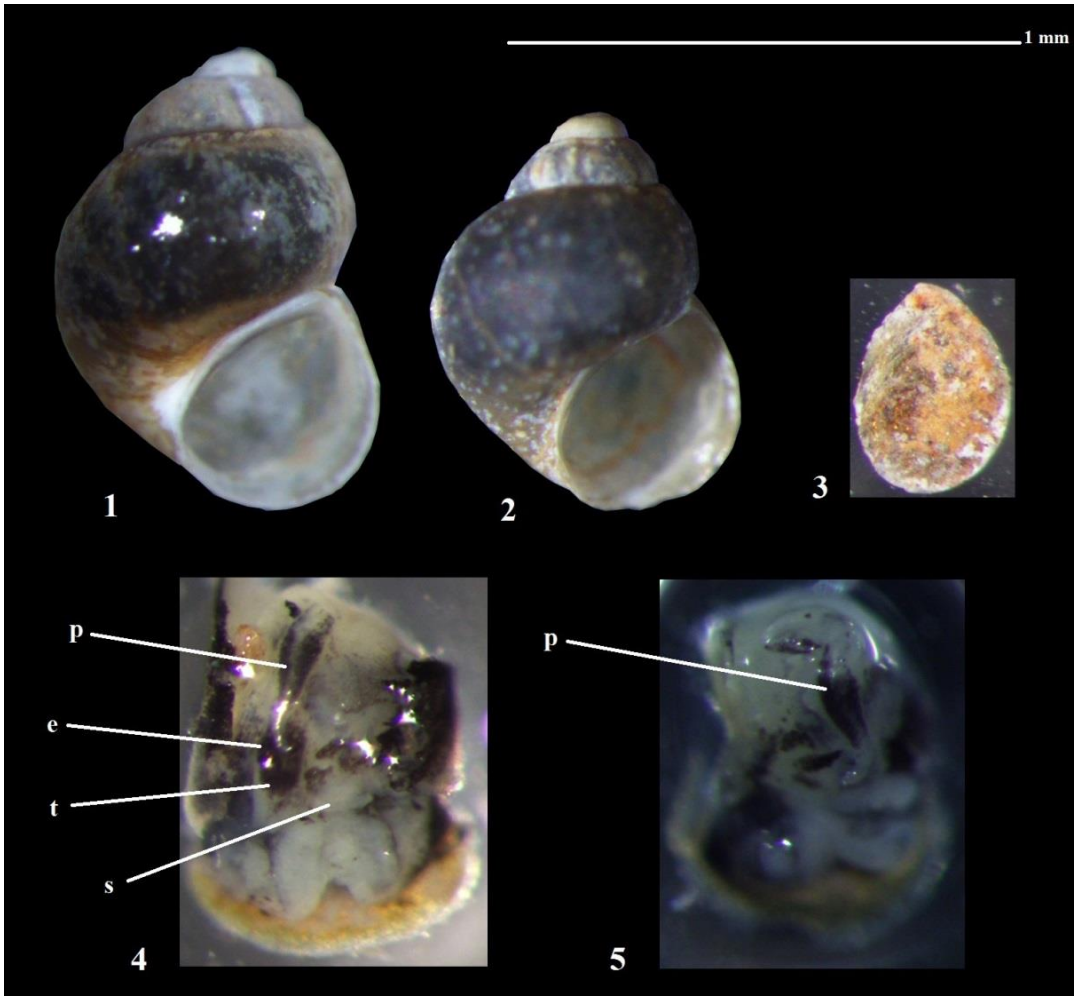

Figure 2. 1-2: Topotypes photos of the *Pseudorientalia natolica* Küster, (1852). 3: operculum 4-5: Penis in situ. Abbreviations: p = penis, e = eye spot, s = snout, t= tentacle

The extinction or partial extinction of animal populations depends on habitat fragmentation, animal diseases, habitat size reduction, genetic deterioration, and human interference (Hokoyama et. al., 2000). Habitat degradation is the biggest threat to many ecosystems (Griffen et al., 2008). But if there is no degradation of the habitat, it is very hard to know why the animal has gone extinct. According to the IUCN Red List, 842 animal and plant species have gone extinct in the past 500 years. The great majority of these are molluscs, most of them terrestrial and freshwater (Briggs, 2015).

At the end of the study, *F*. bunarica could not be found at the Gedelek spring. This is puzzling because despite the spring being in a recreational park that open to people's use, it seems very clean, and iron barriers prevented people from entering the area around the main source of the spring (Figure 3). If there had been any human or natural intervention at the source, it would be expected that *P*. *natolica* would disappear as well. If the species did not disappear entirely but instead became a new species we could say it was a pseudoextinction (Raup, 1981). However, we don't have any data on *F*. *bunarica*, which may now be extinct or near extinction. It does not live in this type of locality, but it might live in the nearby springs of NW Anatolia. Detailed field studies will reveal whether this is true or not.

Figure 3. Photo of the Pınarbaşı spring

Despite the reduction of wetlands, the constriction of basins, and water pollution, doing conservation studies on known localities will prevent hydrobioid losses. The following measures are necessary for the preservation of Turkish freshwater molluscan fauna:

1) Although water pollution increases and wetlands are getting smaller every day, conservation efforts in this type of location will prevent hydrobioid losses. In a future study, the endemic species living in freshwater sources should be determined, and precautions should be taken according to population conditions.
2) Government water management units and ministries should know the fauna and endemism of the region before building structures such as hydropower plants and dams. They must get support from the relevant departments of the universities and, if there is an endemic species living there, the projects should be done without damaging the wetlands.
3) Human intervention should be avoided at water exit points (springs), and the waters in picnic and other gathering areas should be particularly focused on for protection.

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