

## First Record for the Turkish Freshwater Gastropod (Gastropoda: Lymnaeidae) Fauna: *Radix lagotis* (Schrank, 1803)

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### ABSTRACT

In this study, *Radix lagotis* (Schrank, 1803) was reported for the first time for Turkey. Samples collected from Ağrı Doğubeyazıt marshes connected drainage channels and streams in 2010. Short description and morphological features are given.

**Keywords:** *Radix lagotis*, Gastropoda, New record, Doğubeyazıt marshes, Turkey

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### Türkiye Tatlısu Gastropod Faunası İçin Yeni Kayıt: *Radix lagotis* (Schrank, 1803) (Gastropoda: Lymnaeidae)

**Öz:** Yapılan bu çalışma ile *Radix lagotis* (Schrank, 1803) Türkiye'den ilk defa rapor edilmektedir. Örnekler Ağrı Doğubeyazıt sazlığından ve ona bağlı drenaj kanalları ve derelerden 2010 yılında toplanmıştır. Türün kısa tanımı ve morfolojik özellikleri verilmiştir.

**Anahtar Kelimeler:** *Radix lagotis*, Gastropoda, Yeni kayıt, Doğubeyazıt sazlığı, Türkiye

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### Introduction

Hubendick (1953), in his revision of the Lymnaeidae lumped most species of the genus *Radix* together as being one species: *Radix auricularia* (Linnaeus 1758). Since then, most malacologists followed his system, mainly because identification became much easier, but in the same time our knowledge on the distribution of the species of the genus *Radix* strongly decreased. Recently, Bargaes et al. (2001) examined the European Lymnaeidae by application of molecular techniques and revealed the following five species of the genus i.e., *Radix balthica* (Linnaeus 1758), *R. auricularia* (Linnaeus 1758), *R. ampla* (Hartmann 1821), *R. labiata* (Rossmäessler 1835) and *R. lagotis* (Schrank 1803). Later on Glöer (2002) and Schniebs et al. (2011, 2013) discussed morphological and

genetic differences between these species. Up to now, *Radix lagotis* has been reported from Germany (Bavaria (type locality: Danube), Saxonia, Hamburg), Czech Republic (Schniebs et al. 2011), Georgia (Batumi) (Retowski 1889) and Krygyzstan (Glöer et al. 2014). This species seems to be widely distributed in the Palearctic.

Until now, three species of the genus *Radix*, i.e., *Radix auricularia*, *Radix labiata* (= *Radix peregra*) and *Radix ovata* (= *Radix balthica*) have been reported from Turkey (Sturany 1905; Geldiay and Bilgin 1969; Bilgin 1980; Öktener 2004; Yıldırım 2004; Yıldırım et al. 2006; Gürlek et al. 2013). In addition *Lymnaea balthica* f. *ovata* was reported by Croockewit (1953) and Götting (1961) from Bolu Abant Lake.

## Materials and Methods

The samples were collected in 2010 from three localities located in Ağrı Doğubeyazıt reeds (Figure 1). Collected samples were stored in plastic containers and fixed in 70% ethanol. Measuring and photographing were made by stereo microscope with digital camera system. Doğubeyazıt reeds on bird migration routes was extended to the Turkish-Iranian border on 28,000 km<sup>2</sup> area in the past. Today, this area has declined steadily by the extension of Sarısu riverbed (Yarar and Magnin 1997; Adızel et al. 2002).



**Figure 1.** Map of the study area. 1. Doğubeyazıt-Sarısu (39°33'44" N 44°03'49" E; alt. 1704 m asl.) 2. Doğubeyazıt marshes (Saz lake) (39°41'14" N 44°04'15" E; alt. 1549 m asl.) 3. Doğubeyazıt-Karaca village (39°35'41" N 44°03'14" E; alt. 1567 m asl.)

## Results

**Family Lymnaeidae** Lamarck, 1812

**Genus Radix** Monfort, 1810

***Radix lagotis*** (Schrank, 1803)

### Description

**Shell:** The shell is dextral, elongate-ovate with a pointed spire. It is relatively thick-walled but fragile. It has 4.5-5 gradually increasing whorls. The columella is white. The umbilicus is closed. The aperture is oval and angled at the top. The color of the shell varies from light to dark yellowish brown. Height of the shell 8-14 mm; width 3-10 mm (Figure 2a).

**Anatomy:** Bursa and bursa duct lie dorsal to the provaginal duct, vagina, uterus, and prostate gland, the bursa duct is 1/2 to about 2/3 of the length of the bursa (Figure 2b).

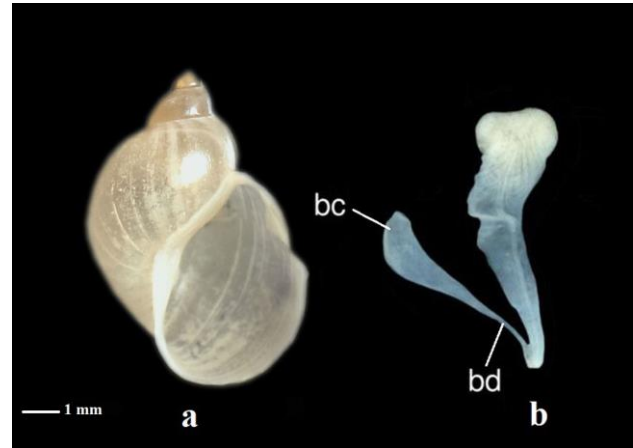
**Differentiating features:** In comparison with a large ear-shaped aperture in *Radix auricularia* has, the aperture of *Radix lagotis* is oval. The shells of *R. balthica*, *R. labiata*, and *R. lagotis* overlap in their very plastic shape.

However, there are differences in the length of the bursa duct, which is very shortened in *R. balthica*, short in *Radix labiata*, and medium sized in *R. lagotis*; in *R. auricularia* the bursa duct is long and thin (Schniebs et al. 2011, 2013).

**Habitat:** First station is a small stream link with reeds. The second and third stations consist of reeds abundant with vegetation.

**Associated species:** *Lymnaea stagnalis*, *Planorbis planorbis*, *Planorbis intermixtus*.

**Distribution in Turkey:** Only known from East Anatolia (Fig. 1).



**Figure 2.** a. Shell of *Radix lagotis*, b. Sex tract of *R. lagotis*, Abbreviations: bc: bursa copulatrix, bd: bursa duct.

## Discussion

In this study, *Radix lagotis* is reported from Turkey for the first time. Furthermore, on the basis of anatomical studies demonstrated that the species published before by Gürlek et al. (2013) under name *Radix peregra* and the number of the species of the genus *Radix* reached four in Turkey.

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