

On the Occurrence of *Niphargus valachicus* Dobreanu & Manolache, 1933 (Amphipoda, Gammaridae) in the Western Black Sea Region of Turkey

Mehmet AKBULUT, Murat SEZGİN, Mehmet ÇULHA, Levent BAT
Ondokuz Mayıs University, Sinop Fisheries Faculty, Division of Basic Sciences, 57000 Sinop - TURKEY

Received: 13.01.2000

Abstract: In this study, the characteristic features, distribution and ecology of the amphipod *Niphargus valachicus* E. Dobreanu & C. Manolache, 1933 sampled at Sırakaraağaçlar Stream of Sinop, flowing into the Black Sea, are given.

Four taxa of *Niphargus* genus, freshwater Amphipoda fauna have been identified in Turkey. In addition to these, *Niphargus valachicus* is a new record for the Turkish freshwater fauna.

Key Words: *Niphargus valachicus*, Gammaridae, Amphipoda, Crustaceae, Turkish freshwater fauna.

Türkiye'nin Batı Karadeniz Bölgesinde *Niphargus valachicus* Dobreanu & Manolache, 1933 (Amphipoda, Gammaridae)'un Tespiti

Özet: Mevcut çalışmada Karadeniz'e akan Sırakaraağaçlar deresinde örneklenen *Niphargus valachicus* Dobreanu & Manolache, 1933'in yapısal özellikleri, ekolojisi ve yayılışı ile ilgili bilgiler verilmiştir.

Türkiye'de tatlı su amphipod faunasından *Niphargus* genusuna ait 4 taksa tespit edilmiştir. Bununla birlikte, *Niphargus valachicus* Türkiye tatlısu faunası için yeni bir kayıttır.

Anahtar Sözcükler: *Niphargus valachicus*, Gammaridae, Amphipoda, Crustaceae, Türkiye tatlısu faunası.

Introduction

Niphargidae amphipods are important components of aquatic subterranean fauna in many parts of the world. They are among the most abundant, widespread and taxonomically diverse organisms found in subterranean groundwater systems. *N. valachicus* was first identified by Dobreanu & Manolache from Belgrade (Yugoslavia) in 1933 (1).

The entire distribution area of this species corresponds to the extension of Paratethys in the Miocene/Pliocene transition (except for Caspian parts of Paratethys). The wide distribution of *N. valachicus* in that area makes it probable that it invaded freshwaters from the remains of the Tethyan Sea rather than distributing across the whole area from a single focus. The characteristics of its habitat make it probable that *N. valachicus* is a very euryoecious but competitively weak animal which is usually linked to an degree of

conservatism. It probably invaded continental waters through coastal lagoons, similar to some other pontocaspian elements. The morphological peculiarities of *N. valachicus* are probably mostly characteristic of an old, primitive *Niphargus* (2).

Current knowledge concerning Niphargidae amphipod species in Turkey is not yet available. Only four taxa belonging to the *Niphargus* genus are known in the Turkish freshwater ecosystems (3,4). They are *N. puteanus spoeckeri*, *N. illidzensis orientalis*, *N. anatolicus* and *N. tauri*. In this study, *N. valachicus* (the suborder Gammaridea and the families Niphargidae) is reported for the first time for the Turkish freshwater fauna.

Materials and Methods

The samples were collected monthly at Sırakaraağaçlar Stream flowing into the Black Sea,

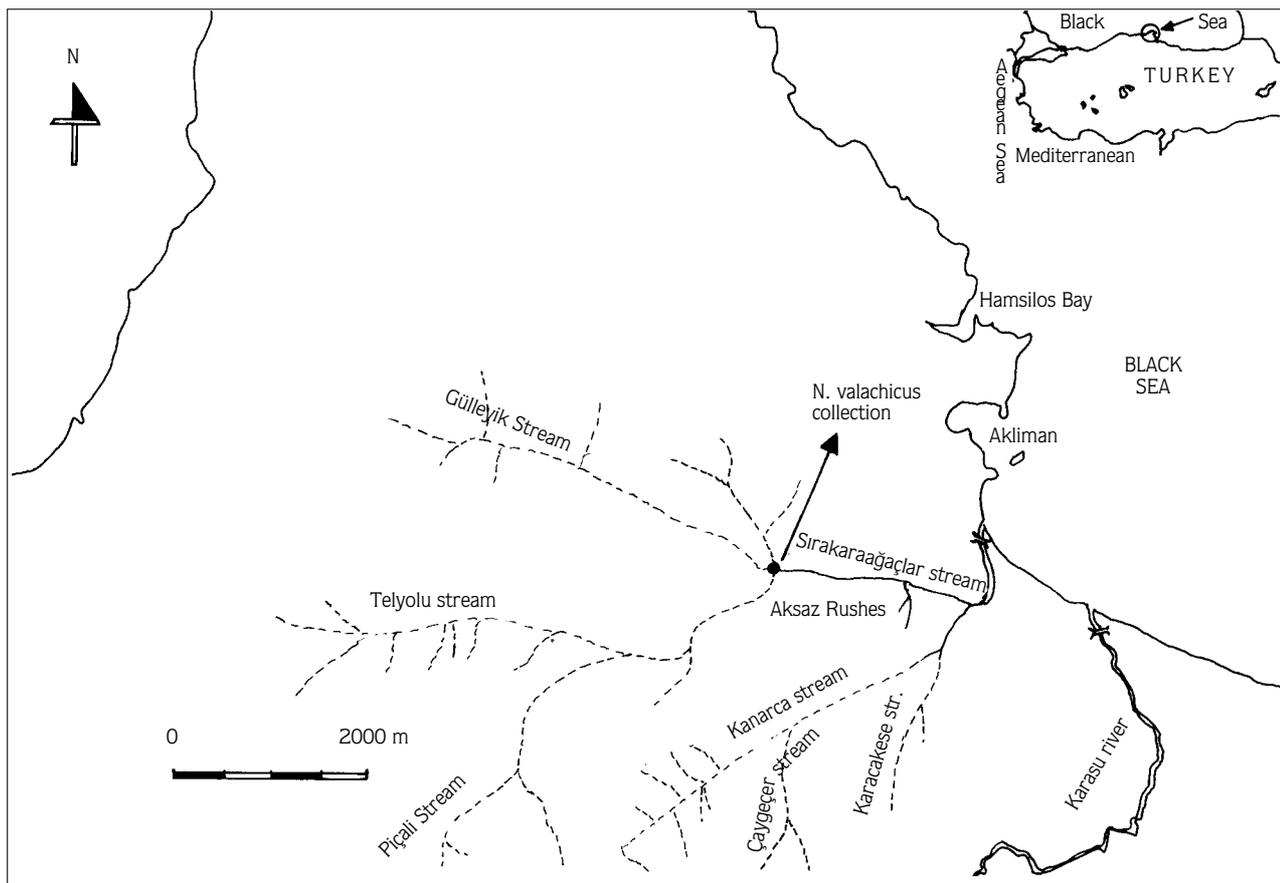


Figure 1. Study Area

Akliman (Sinop)-Turkey between July 1997 and June 1998. The main length of Sırakaraağaçlar Stream, which has two branches, is 3.2 km (Figure 1). However, *N. valachicus* was sampled at 42° 2' 24" N, 35° 1' 5" E by using a scoop net that has 1 mm mesh size. During the study, *N. valachicus* specimens were found each month.

Results

Description: It has a stocky body with comparatively short appendages, and strong and prominently structured cuticle. Male total body length is 14-15 mm and female total body length is 18-20 mm. The eyes are absent. It is similar to *N. puteanus*, but gnathopod I and II are hoof shaped. Propodus of gnathopod II in the male is much broader than that of gnathopod I. There is only one spine on the posterior margin of the palm of both gnathopod I and gnathopod II. Palm convex and strongly oblique. P7 is not especially widened at any age. Telson is longer than broad, distinctly cleft, each lobe with three apical spines.

Posterodistal angle of epimeral plate 3 is acutely produced. Plate 2, 3 posterior margin with 1-2 small spines. Antenna I much longer than antenna II. Antenna I ♂ up to half body length, peduncle robust, flagellum up to about 38 articulate. The flagellum of antenna II ♂ is 7 articulate. Outer ramus of uropod III is at least three times longer than inner ramus.

The natural colour of the specimens obtained is brownish. Morphological differences are observed: the special organ on male first uropods is smaller than those found by Cărăușu (1). Some body extremities belonging to *Niphargus valachicus* (♂) are shown in Figure 2.

Distribution: *N. valachicus*, which is an epigeal species, is distributed over all parts of the Pannonian plan in Yugoslavia (2), and in Hungary, Czechoslovakia, Greece and Ukraine (1,3).

Ecology: *N. valachicus* lives together with *Synurella ambulans* and *Asellus aquaticus* (Malacostraca), *Cloeon dipterum* (Ephemeroptera) and *Hirudo medicinalis*

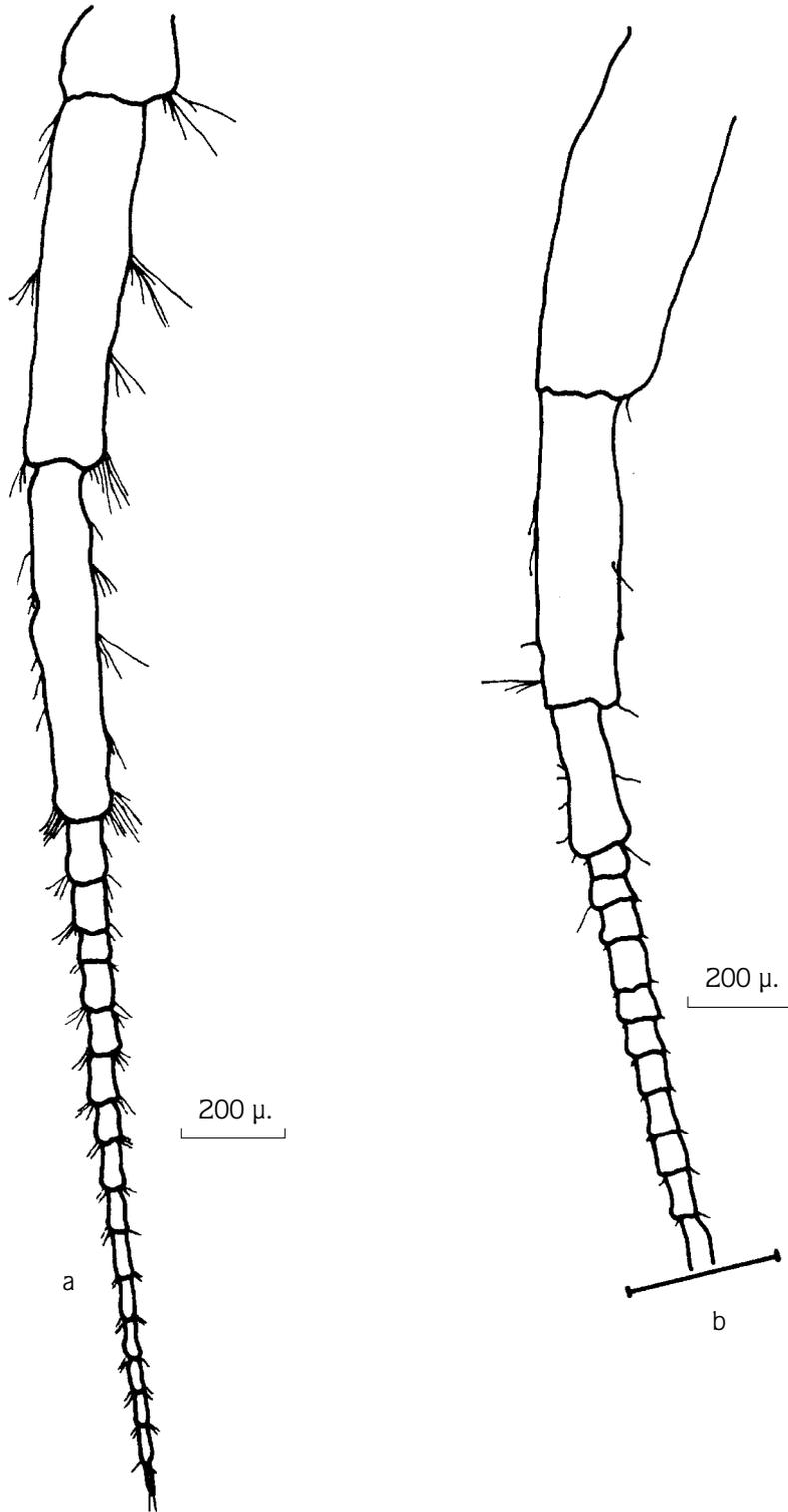


Figure 2. *Niphargus valachicus* (♂)
a. Antenna II, b. Antenna I.

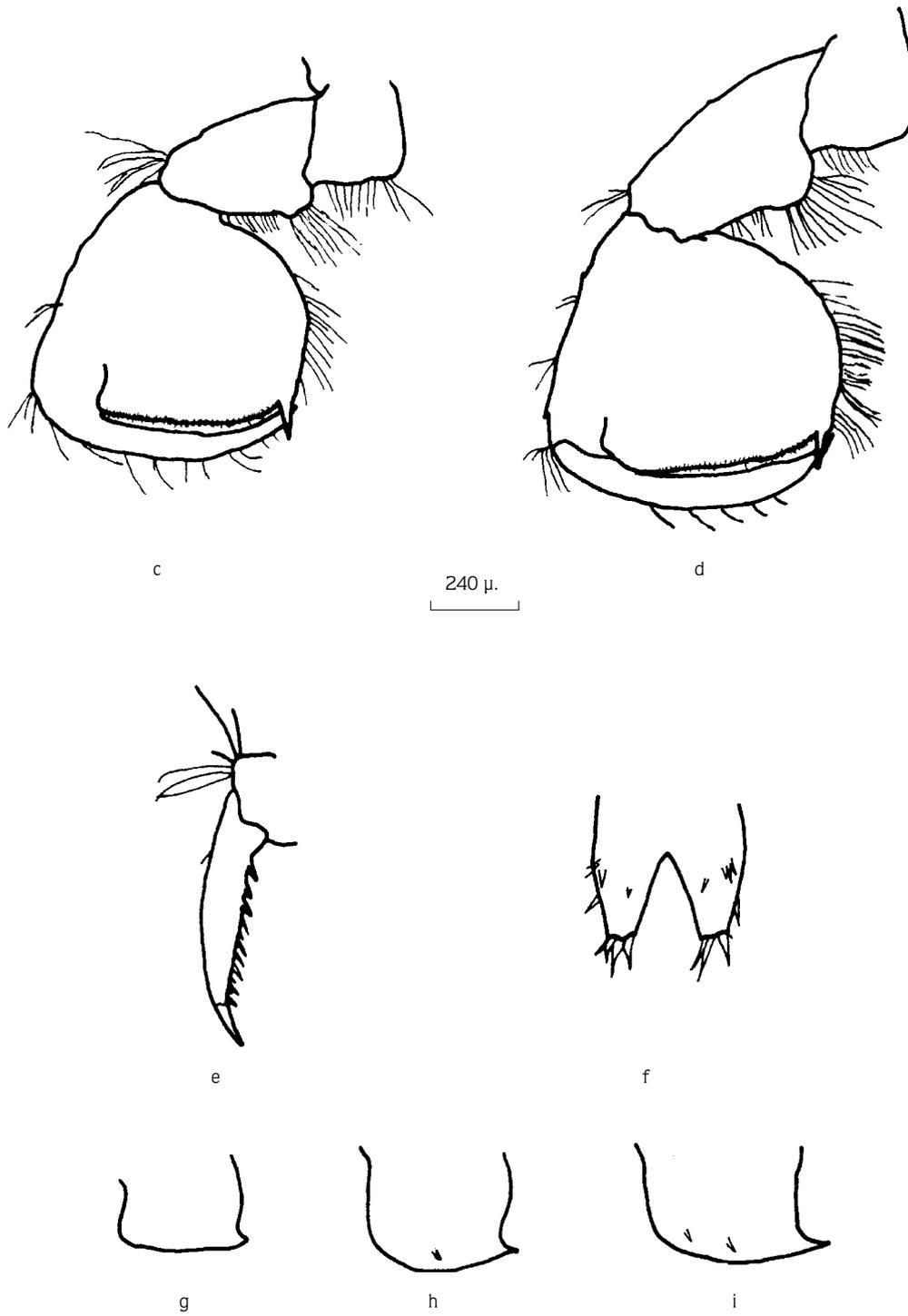


Figure 2. c. Gnathopod I, d. Gnathopod II, e. Dactylopodite of P5, f. Telson, g. Epimeral plate I, h. Epimeral plate II, i. epimeral plate III.

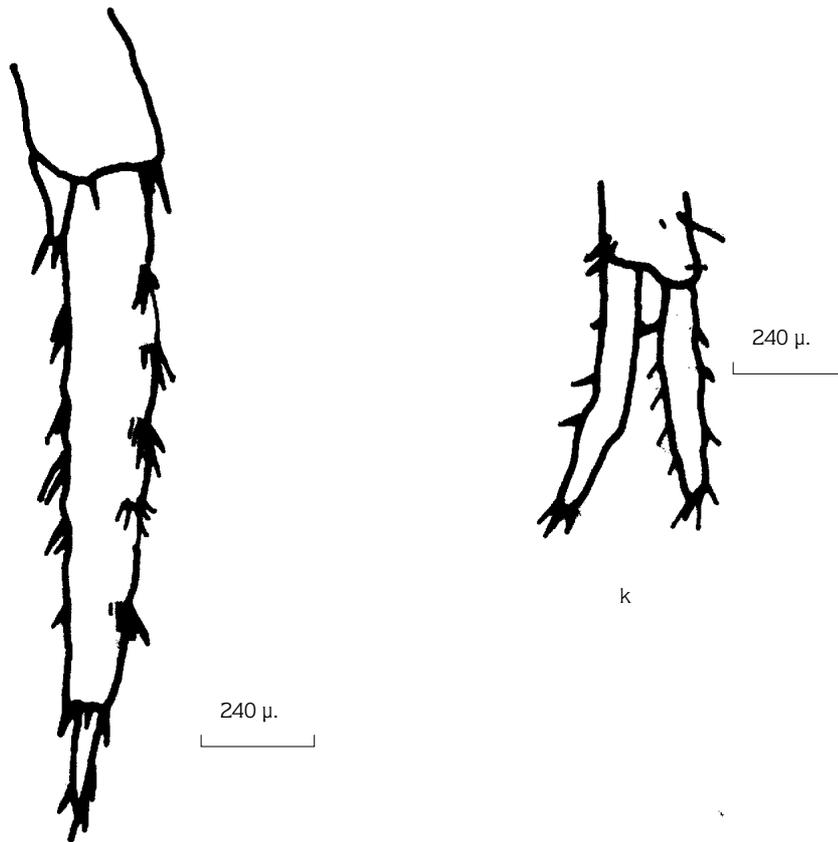


Figure 2. j. Uropod III, k. Uropod I.

(Hirudinea) in Sirakaraağaçlar Stream. Secondary aquatic plants such as *Elodea canadensis*, *Ceratophyllum* sp. and *Myriophyllum* sp. cover the surface of the water, so the light cannot penetrate below. Its bottom contains mud and clay. At the station there are a lot of secondary water plants. Eutrophication can be observed because of the high productivity of the plants. However, there is no pollution problem (5).

References

1. Cărăușu, S., Dobreanu, E., and Monalache, C., Fauna Republicii Populare Romine Crustaceae (Amphipoda), IV., 4. Editura Academiei Republicii Populare Romine, Romania, 312-317, 1955.
2. Sket, B., Distribution, Ecological, Character and Phylogenetic importance of *Niphargus valachicus* (Amphipoda, Gammaridae, S.L.). Biol. Vestn. 29 (1): 87-103, 1981.
3. Barnard, J. L., and Barnard, C. M., Freshwater Amphipoda of the World I. Evolutionary pattern, II. Handbook and Bibliography. Hayfield Associates, Mt. Vernon, Virginia, 359-830, 1983.
4. Barnard, J. L., and Barnard, C. M., Geographic Index to Freshwater Gammaridea (Amphipoda), NHB-163, Smithsonian Inst.-Washington, D.C. 20560, USA, 1-50, 1991.
5. Bat, L., Akbulut, M., Çulha, M. and Sezgin, M., The Macrobenthic Fauna of Sirakaraağaçlar Stream flowing into the Black Sea at Akliman, Sinop. Turkish J. Mar. Sci., 6 (1): 71-86, 2000.

In conclusion, *Niphargus valachicus* is identified for the first time for the Turkish freshwater fauna in this study.

Acknowledgements

The authors wish to thank Prof. Dr. Sandro RUFFO for his help in determining the species and Res. Ass. Murat ÖZBEK for providing literature.