**FIRST RECORD OF NEVRORTHIDAE FROM SLOVENIA**Joshua R. JONES<sup>1</sup> and Dušan DEVETAK<sup>2</sup><sup>1</sup>Texas A&M University, College Station, TX, 77843-2475, U.S.A.

E-mail: doc.jones3000@tamu.edu

<sup>2</sup>Department of Biology, FNM, University of Maribor, Koroška c. 160,  
2000 Maribor, Slovenia

**Abstract** – *Nevrorthus apatelios* H. Aspöck, U. Aspöck et Hölzel, 1977 is recorded for the first time from Slovenia. The finding on the southwest slopes of the eastern Julian Alps represents the northernmost record for the family in Europe. A list of known localities for *N. apatelios* is provided in an appendix.

KEY WORDS: Neuroptera, *Nevrorthus apatelios*, new record, Slovenia

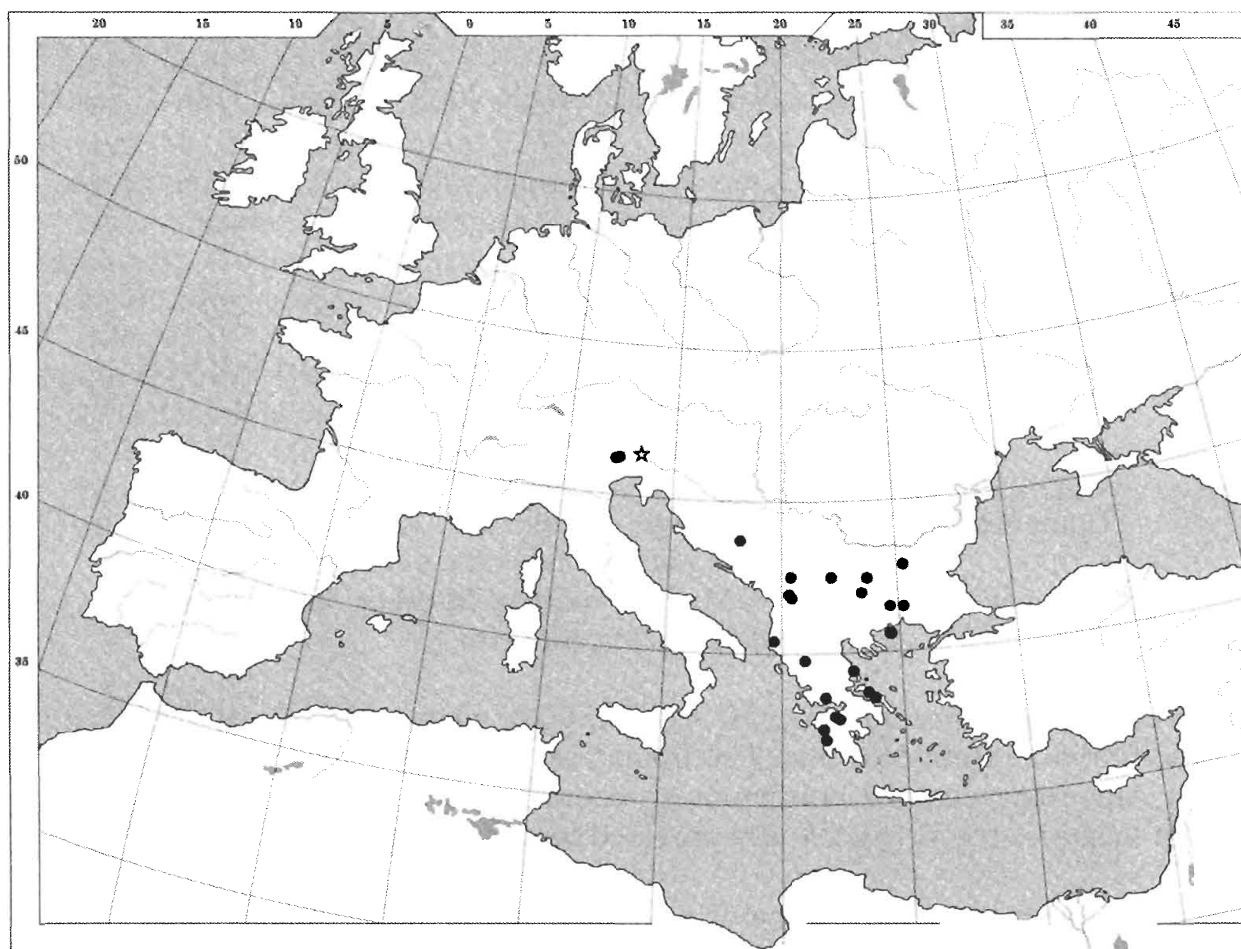
**Izveček – PRVA NAJDBA DRUŽINE NEVRORTHIDAE V SLOVENIJI**

Prvič je v Sloveniji zabeležena najdba vrste *Nevrorthus apatelios* H. Aspöck, U. Aspöck et Hölzel, 1977. Najdba na jugozahodnih pobočjih vzhodnih Julijskih Alp je najsevernejša najdba družine v Evropi. Spisek znanih najdišč vrste *N. apatelios* je sestavljen v dodatku.

KLJUČNE BESEDE: Neuroptera, *Nevrorthus apatelios*, nova najdba, Slovenija

Recently, Letardi *et al.* (2005) reported the occurrence of *Nevrorthus apatelios* H. Aspöck, U. Aspöck et Hölzel (1977) in the Friuli region of northern Italy. This discovery significantly expanded the known geographic distribution of this primarily Balkan species, increasing its documented range by 3° latitude to the north and 4° longitude to the west. This unexpected discovery has suggested that nevrorthids, which are rarely collected and appear to be very locally distributed, may have a greater distribution in southeastern Europe than previously realized.

On 22 June 2008, the first author collected two adult male specimens of *N. apatelios* in the Goriška region of western Slovenia. The specimens were collected along Ročica stream, approximately one half kilometer east of the village of Drežnica, near



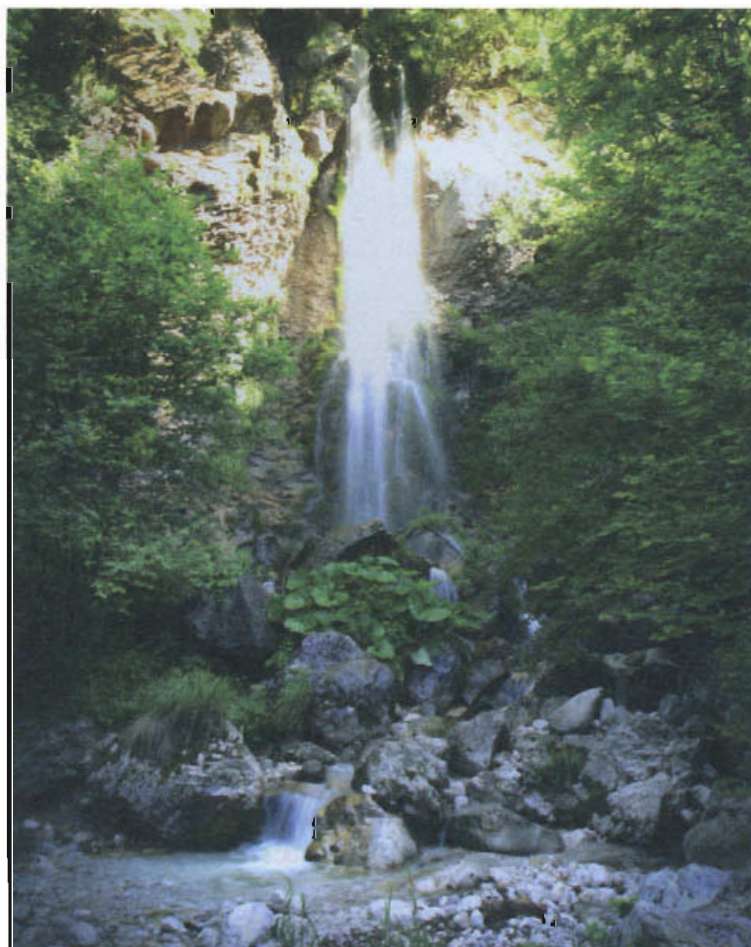
**Fig. 1:** Known distribution of *Nevrorthus apatelios* H. Aspöck, U. Aspöck et Hölzel. The new record reported here is marked with a star. Distributional data were obtained from Aspöck et al. (1977, 1980), Devetak (2003), Klapalek (1917), Letardi et al. (2006), Malicky (1984), Pongrácz (1923), Popov (1993, 1990), and Saure (1989).

the town of Kobarid (precise collection locality:  $46^{\circ}15'24.38''\text{N}$ ,  $13^{\circ}37'21.57''\text{E}$ , 634 m; source: Google Earth™). The first specimen, which afterwards proved to be teneral, was sighted on and then aspirated from a large mossy boulder in the center of the stream. The other was taken shortly after with a sweep net at about shoulder height as it flew upstream only a few meters away. Both specimens are presently in the personal collection of the first author. No other specimens were collected during searches by the first author and J. D. Oswald along the stream from the paved road leading from Drežnica upstream to Slap Sapota (Sapota Waterfall), a distance of approximately 0.4 km. This reach of the stream was heavily shaded by adjacent trees and shrubs. Collecting efforts at the site by the second author on 6–7 August 2008 (which followed many days of heavy rains) yielded no additional specimens.

The Ročica stream originates from several springs at the foot of the steep lower face of Mt. Krn (2245 m). Its exceptionally clear waters flow steeply downwards

among large limestone boulders, which is characteristic of streams flowing across the glacial-morainic alluvia of the eastern Julian Alps. From the terraced valley where Drežnica sits, the Ročica continues southward to the upper Soča Valley where it eventually feeds into the Soča River. The Ročica is similar to many small streams in the region, and it seems likely that other streams in the Soča River watershed may provide ideal habitat for nevrothids, the aquatic larvae of which are known only from clean, high-grade streams and small rivers with fast currents.

The collection of *N. apatelios* near Drežnica represents the first record of Nevrothidae from Slovenia (see Devetak 1984 for a review of Neuropterida recorded from Slovenia), and the northernmost record for the family in Europe (see Fig. 1, appendix). Drežnica lies approximately 75 air kilometers east-northeast of the Italian collecting localities reported by Letardi *et al.* (2005). Prior to its discovery in Italy and Slovenia, the northernmost known record for *N. apatelios* was from a locality in present-day Bosnia and Herzegovina, nearly 500 kilometers southeast of Drežnica (Aspöck *et al.* 1980). The discovery of nevrothids in Slovenia adds further support to the idea that nevrothids may be more widely distributed than previously anticipated in southern Europe, particularly in the clear, medium elevation streams of the southern Alps.



**Fig. 2:** Sapota Waterfall, above the site where *N. apatelios* specimens were collected.



**Fig. 3:** Ročica stream, near the collection site.



**Fig. 4:** The path along Ročica stream leading up to Sapota Waterfall, a few dozen meters below where *N. apatlios* specimens were collected. Mt. Krn can be seen in the background.

## Acknowledgment

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## Appendix

### List of recorded localities for *Nevrorthus apatelios* H. Aspöck, U. Aspöck et Hölzel, 1977.

Information is provided in the following format: **Country:** 1. first political subunit (District and/or Province and/or Periphery, etc.), second political subunit (County and/or Prefecture, etc., if known and applicable), Municipality (if known and applicable): specific locality (if known), GPS coordinates, collection dates, COLLECTORS or EXPEDITION, numbers of males (♂), females (♀), and larvae collected. Collecting method (if known). [Reference].

GPS coordinates followed by an asterisk (\*) are estimates made by the authors of this paper. All politico-geographic names are given in English or in the anglicized regional spelling if known, and if not, then in the language of their region. In some cases where confusion might exist, common alternate names used for a region, or a regional name as it appeared in the original publication, are included parenthetically, for example, “Pentagii (=Pendayi)”. The localities of holotype and paratypes are indicated.

#### **Albania:**

1. Kukës District, Kukës County, Bicaj, 42° 00' N, 20° 25' E\*, 14–15.VII.1918, ALBAN. EXP. NAT. MUS. WIEN, 4 ♂, 1 ♀. [Aspöck et al. 1977]

2. Dibër District, Dibër County, Ploshtan, 41° 50' 41" N, 20° 27' 19" E\*, 22.VII.1918, ALBAN. EXP. NAT. MUS. WIEN, 1 ♀. [Aspöck et al. 1977]

#### **Bosnia-Herzegovina:**

1. Bosnia, Sarajevo, 43° 52' 00" N, 18° 25' 00" E\*, 16.VII.1929, ZERNY, 1 ♂. [Aspöck et al. 1977]

#### **Bulgaria:**

1. Sofia Province, Sofia: Vitosha: Boyana, 42° 38' 28" N, 23° 15' 42" E\*, 20.VII.1893, F. KLAPALEK, 2 ♀. [Klapalek 1894, 1895, 1917; Popov 1990, 1993]

2. Sofia Province, Sofia: Vitosha: Dragalevci, 42° 37' 00" N, 23° 18' 40" E\*, 20.VII.1893, F. KLAPALEK, 19 ♂, 5 ♀. [Klapalek 1894, 1895, 1917; Popov 1990, 1993]

#### **Greece:**

1a. **HOLOTYPE:** Central Greece Periphery, Euboea Prefecture, Evia (=Euboea, Euboa) Island: stream S of Procopio, 38° 42' N, 23° 30' E, 250 m, 24.V.1974, H. MALICKY. 1 ♂. [Aspöck et al. 1977; Malicky 1984]

- 1b. *PARATYPES*: same locality as holotype, 24.V.1974 and 1.V.1975, H. MALICKY, 27 ♂, 9 ♀, and 2 ♂, 1 ♀. [Aspöck et al. 1977; Malicky 1984]
2. Central Greece Periphery, Euboea Prefecture, Evia (=Euboea, Euboa) Island, Steni Dirfyos: side stream of main brook of valley near first turn of road to Stropones, 38° 35' 18" N, 23° 50' 47" E\*, 500 m, 24.V.1974, 4.VI.1979, 12.X.1980, and 13.III.1982, H. MALICKY, 2 larvae. [Malicky 1984]
3. Central Greece Periphery, Phocis Prefecture, Vardousia: near Pentagii (=Pendayi), 38° 35' N, 22° 04' E, 950 m, 3.VI.1975, H. MALICKY, 1 ♂. [Aspöck et al. 1977; Malicky 1984; **note**: Malicky placed his locality in Aetolia (and thus the Aetolia-Acarmania Prefecture), but Pendagii is in fact in the Phocis Prefecture]
4. East Macedonia and Thrace Periphery, Kavala Prefecture, Thasos (=Thassos) Island: 2 km NE of Mariés, main stream of Tales, 40° 41' 51" N, 24° 38' 17" E\*, 400 m, 17.VI.1979 and 17.X.1980, H. MALICKY, 1 larvae. [Malicky 1984]
5. East Macedonia and Thrace Periphery, Kavala Prefecture, Thasos (=Thassos) Island: streamlets 5 km NE of Mariés, 40° 42' 47" N, 24° 39' 40" E\*, 600 m, 18.VI.1979 and 17.X.1980, H. MALICKY, 1 ♀. [Malicky 1984]
6. East Macedonia and Thrace Periphery, Kavala Prefecture, Thasos (=Thassos) Island: streamlets SSE of Prinos, 40° 42' 40" N, 24° 36' 54" E\*, 700 m, H. MALICKY, 16.VI.1979 and 16.X.1980, 7 ♂. [Malicky 1984]
7. Epirus (=Ipiros) Periphery, Ioannina Prefecture: source rivlet N of Tristenon, 39° 48' N, 21° E, 950 m, 5.VI.1975, H. MALICKY, 1 ♂. [Aspöck et al. 1977; Malicky 1984]
8. Peloponnese Periphery, Corinthia Prefecture, Karteri (=Karterion): near Stymfalia Lake, 37° 51' N, 22° 23' E, 27.VII.1974, H. MALICKY, 1 ♀. [Aspöck et al. 1977; Malicky 1984]
9. Thessaly Periphery, Magnesia Prefecture, Pelion Province, Chania (=Hánia), 39° 23' 47" N, 23° 03' 41" E\*, 21.VII.1987, C. SAURE, 1 ♀. [Saure 1989]
10. Thessaly Periphery, Magnesia Prefecture: Pelion mountains E of Volos, brook above Portaria, 39° 23' 39" N, 23° 00' 25" E\*, 750 m, 15.VI.1979 and 13.X.1980, H. MALICKY, 6 ♂, 2 ♀. [Malicky 1984]
11. West Greece Periphery, Achaea Prefecture, Zachlorou, 38° 05' 53" N, 22° 09' 47" E, 600 m, VI.1958 and 2–15.VII.1959, J. KLIMESCH and/or H. NOACK, 1 ♂, and 1 ♂, 1 ♀. [Aspöck et al. 1977; **note**: the politico-geographic information and GPS coordinates provided by Aspöck et al. for the locality "Zachlorou, 600 m" appear to have been very rough approximates, so new information and more accurate coordinate estimates are provided here]
12. West Greece Periphery, Elia Prefecture, Kato Figaleia (=Ancient Phigaleia, Figalia, Kato Figalia), 37° 23' 57" N, 21° 50' 33" E\*, 600 m, 25.V.1974, H. HÖLZEL, 6 ♂, 3 ♀. [Aspöck et al. 1977; **note**: the politico-geographic information and GPS coordinates provided by Aspöck et al. for the locality "Kato Figalia, 600 m" cannot be correct; new information and coordinate estimates are provided here]
13. West Greece Periphery, Elia Prefecture: ca. 10 km E of Olympia, brook by Church of Agios Nektarios, 37° 38' 30" N, 21° 43' 33" E\*, 90 m, 21.V.1979, H. MALICKY, 6 ♂, 7 ♀. [Malicky 1984; **note**: the church east of Olympia indicated by

Malicky could not be confirmed exactly; information and coordinates provided here are estimates only]

**Italy:**

1. Friuli-Venezia Giulia Region, Province of Pordenone, Barcis: Cellina River, 46° 11' N, 12° 32' E, 450 m, 23.VII.1996, M. VALLA and P. PANTINI, 2 ♀. Light trap.

2. Friuli-Venezia Giulia Region, Province of Pordenone: near Arcola, Cellina River, 46° 12' 02" N, 12° 31' 20" E\*, VII–VIII.2006, R. PANTALEONI, U. ASPÖCK, H. ASPÖCK, R. RAUSCH, and H. RAUSCH, ♂♂, ♀♀, 2 larvae.

**Kosovo:**

1. District of Peć (=Ipek), Municipality of Peć, 42° 39' 38" N, 20° 17' 29" E\*, 21.VI.1917 and 26.VI.1917, S. PONGRÁCZ, 2 ♂. [Pongrácz 1923, Devetak & Jakšić 2003]

2. District of Prizren, Municipality of Prizren: NW slopes of Mt. Šar-planina, Prizrenska Bistrica, 42° 12' 51" N, 20° 44' 29" E\*, 22.VII.1986, P. JAKŠIĆ. [Devetak & Jakšić 2003]

**Serbia:**

1. Jablanica District, Leskovac municipality, Predejane: Grdelićka Klisura (=Grdelica gorge), side brook of South Morava River, 42° 50' N, 22° 08' E, 250 m, 1.VI.1976, H. MALICKY, 2 ♀. [Aspöck et al. 1977, Malicky 1984]

**Slovenia:**

1. Goriška Province, Kobarid Municipality, Drežnica: 0.5 km NW of town, Ročica stream, 46° 15' 24.38" N, 13° 37' 21.57" E, 634 m, 22.VI.2008, J. JONES, 2 ♂. Sweep net. [this publication]

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