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B. SKET

THE FRESHWATER MACROINVERTEBRATES
OF FRIULI-VENEZIA GIULIA (NORTHEASTERN ITALY):
LEECHES (HIRUDINEA)

*I MACROINVERTEBRATI DELLE ACQUE INTERNE
DEL FRIULI-VENEZIA GIULIA (ITALIA NORD-ORIENTALE):
SANGUISUGHE (HIRUDINEA)*

Abstract - 13 taxa of Hirudinea were identified in a rich set of samples from running waters of Friuli-Venezia Giulia, NE Italy. *Dina cf. punctata* was by far the most widespread among them while here *Erpobdella octoculata* was much more limited in occurrence than usual in Central Europe. Due to some unresolved taxonomic questions in the genera *Glossiphonia*, *Piscicola* and *Dina*, the material could not be definitely classified.

Key words: Benthic macroinvertebrates, Hirudinea, Freshwaters, Distribution, Northeastern Italy.

Riassunto breve - 13 taxa di irudinei sono stati identificati in un ricco insieme di campioni provenienti dalle acque correnti del Friuli-Venezia Giulia, Italia NE. *Dina cf. punctata* si è rivelata la specie di gran lunga più ampiamente distribuita, mentre la presenza di *Erpobdella octoculata* in quest'area è più limitata di quanto ci si potrebbe aspettare osservando la sua distribuzione nell'Europa Centrale. A causa di alcuni problemi tassonomici irrisolti, il materiale appartenente ai generi *Glossiphonia*, *Piscicola* e *Dina* non ha potuto essere classificato completamente.

Parole chiave: Macroinvertebrati bentonici, Irudinei, Acque interne, Distribuzione, Italia nord-orientale.

Introduction

For this study I obtained a rich collection of Hirudinea from samples taken from running fresh waters all over the region Friuli-Venezia Giulia (Furlanija-Julijska Krajina) in NE Italy, but only a very small number of pond samples were included. Leeches were collected from stones as well as from plants, large and small specimens were equally collected.

The region could be characterized as an alluvial plain of (sub)mediterranean character in its south, while prealpine and alpine in the north where it comprises a part of the Southern Calcareous Alps. In its extreme SE the region includes the north-westernmost sections of the Dinaric karst, i.e. parts of the well-known "classical" Carso or Kras or Karst.

The samples were taken during the procedure of a routine river quality survey (STOCH et al., 1992; 1997), i.e. in principle, without thought about specialist taxonomic study of some more demanding groups. In the case of Hirudinea, this means that specimens were not narcotised prior to fixation and therefore are not preserved in the best and equalised pose. Moreover, they were first preserved in formalin which makes this material unsuitable for DNA analysis. These limitations in the procedure of identification are posed by the material itself. The others lay in the state-of-the-art present-day leech taxonomy which will be presented separately with the taxa they concern. Since in this situation in no way an anatomical inspection would have solved taxonomical problems, it was not performed.

All together 1328 specimens from 211 localities have been examined.

Some of the species mentioned herein have already been recorded for the region by MINELLI (1979a), but not by BLANCHARD (1894).

Results

Family Glossiphoniidae

Helobdella stagnalis (LINNAEUS, 1758)

This small but easily identifiable animal was found in several localities, including clean rivers and streams as well as pools in the karst near Trieste. Its quasi limitation to the southern lowland parts of the region is puzzling, as this is a generalist species occurring otherwise also at higher elevations, such as in neighboring Slovenia, or even in mountains. It is mostly a predator on conveniently small aquatic animals. Its small number in most samples from this territory is probably an artefact. According to MINELLI (1979) it is present in all regions of Italy; MINELLI (1979a) reports the species for Friuli-Venezia Giulia.

Glossiphonia aggr. *complanata* (LINNAEUS, 1758)

The previously supposed species status for some included "varieties" was recently established by molecular methods (VEROVNIK et al., 1999). Since these species are often difficult to identify even in well preserved conditions, such attempts have not been made with this material. Beside *G. complanata* proper it may contain *G. nebulosa* Kalbe and *G. concolor* (Apathy). These species reportedly suck body fluids of small aquatic invertebrates, mostly gastropods.

With the exclusion of its absence in the Carso, all the comments concerning *Helobdella* for this group are valid as well. The absence in Carso is in accord with its slightly more rheophilic nature.

G. complanata was cited by MINELLI (1979a) for Friuli-Venezia Giulia.

Glossiphonia (*Batrachobdella*) *paludosa* (CARENA, 1824)

The small, gastropod-sucking leech was found in a limited number of localities in the lowland district. Without exception single specimens were collected in accordance with the nature of this rarely found leech. The species had already been noted in the Carso by SKET (1968).

G. paludosa was reported by MINELLI (1979a) for Friuli-Venezia Giulia.

Alboglossiphonia aggr. *heteroclita* (LINNAEUS, 1761)

Like in the case of *Glossiphonia*, at least the formerly recognized "forms" *papillosa* Braun and *hyalina* O.F. Müller, are good species, that again are difficult to identify in improperly preserved samples.

This small snail parasite was found nearly as rarely as the similar *G. paludosa*, in 9 lowland localities, mostly singly.

Hemiclepsis marginata (O.F. MÜLLER, 1774)

A parasite on fish and some other aquatic vertebrates, it was found only in six localities in the lowland district, mostly singly. According to MINELLI (1979) it is known from all northern and central Italian regions; MINELLI (1979a) reports the species for Friuli-Venezia Giulia.

Family Piscicolidae

Piscicola s.l. spp.

Recent investigations by BIELECKI (1997) in Poland have shown that what we considered *P. geometra* may in fact be a number of different species, distinguishable only in well preserved specimens and by dissection. Piscicolids, which feed as temporary parasites on fish, have been found in 15 localities in the SW of the region. They belong to at least two and probably more species.

MINELLI (1979) finds good reasons to doubt the natural occurrence in Italy of *Piscicola geometra* as well as any presence of *Cystobranchus respirans* (TROSCHER), which means the natural occurrence of freshwater piscicolids at all. However, the presence in the present samples of both, *geometra*- and *respirans*-like leeches, and the occurrence of endemic piscicolids in north-eastern confluents of the Adriatic (SKET, 1985) point out better prospects for the piscicolid fauna of Italy.

Family Hirudinidae

Hirudo medicinalis LINNAEUS, 1758

The species was collected in a single pond in the Carso more than twenty years ago; the pond dried up some years ago and was then recovered, but the population of *H. medicinalis* disappeared. Nowadays the species is rare in extensive parts of Europe, and inserted in the IUCN Red List.

Family Haemopidae

Haemopsis sanguisuga (LINNAEUS, 1758)

This amphibious and pollution-tolerant leech of predatory and scavenging habits was found scattered throughout the territory. The small number of localities (only 5) could be a result of the sampling methods. According to MINELLI (1979) it is known from all regions of Italy; MINELLI (1979a) reports the species for Friuli-Venezia Giulia.

Family Erpobdellidae

Erpobdella octoculata (LINNAEUS, 1758)

This predatory species is widespread and generalist, inhabiting clear as well as heavily polluted waters in neighbouring Slovenia. It was found in a number of localities but is nevertheless very limited in distribution in the lowland Friuli-Venezia Giulia. According to MINELLI (1979), it is most probably distributed in the whole of Italy, but with certainty found in northern (and some other) parts. MINELLI (1979a) reports the species for Friuli-Venezia Giulia.

Contrary to Slovenia, where dark specimens with pale dots prevail by far, these specimens were mostly pale with very scarce brown dots dorsally; as MINELLI (1979) describes the species we might conclude that this is the general situation in Italy.

Erpobdella testacea (SAVIGNY, 1820)

This species ecologically resembles *E. octoculata*. In Friuli-Venezia Giulia it penetrates from the

N°	CODICE	PROV	STAZIONE	DATA	<i>H. stigmatis</i>	<i>G. complanata</i> s.l.	<i>G. (H.) pulchra</i>	<i>A. heterothila</i> s.l.	<i>H. marginata</i>	<i>Pterocla</i> sp.	<i>H. medialis</i>	<i>H. sangusanga</i>	<i>E. obovata</i>	<i>E. testacea</i>	<i>D. cf. punctata</i>	<i>D. kraussii</i>	<i>Episphindus</i> e sp.
1	-	TS	Capofonte teresiano in via Valerio, Trieste	16/01/88	-	-	-	-	-	-	-	-	-	-	-	-	-
2	VG2688	TS	Grotta riva sinistra T. Rosandra o Aniro di Venere (VG 2688), S. Doriglio della Valle	19/08/88	-	-	-	-	-	-	-	-	-	-	-	-	-
3	-	TS	Sorgente Bukovec inferiore, Val Rosandra (M. Carso), S. Doriglio della Valle	24/05/95	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	TS	Sorgente Bukovec superiore, Val Rosandra (M. Carso), S. Doriglio della Valle	24/05/95	-	-	-	-	-	-	-	-	-	-	-	-	-
5	-	TS	Sorgente del Rio Grignano, Prosecco, Trieste	04/07/96	-	-	-	-	-	-	-	-	-	-	-	-	-
6	S0084	TS	Sorgente del Rio Miranare o Stari Potok (pozza n. 84), Contovello, Trieste	24/01/83	-	-	-	-	-	-	-	-	-	-	-	-	-
7	S0084	TS	Sorgente del Rio Miranare o Stari Potok (pozza n. 84), Contovello, Trieste	06/05/83	-	-	-	-	-	-	-	-	-	-	-	-	-
8	S0084	TS	Sorgente del Rio Miranare o Stari Potok (pozza n. 84), Contovello, Trieste	28/05/83	-	-	-	-	-	-	-	-	-	-	-	-	-
9	-	TS	Sorgente del Torrente Farneto, pozza 1 da escavazione, Longera, Trieste	09/04/83	-	-	-	-	-	-	-	-	-	-	-	-	-
10	-	TS	Sorgente I strada S. Doriglio-Prebenico (rio II canale), S. Doriglio della Valle	14/05/84	-	-	-	-	-	-	-	-	-	-	-	-	-
11	-	TS	Sorgente I strada S. Doriglio-Prebenico (rio II canale), S. Doriglio della Valle	24/10/90	-	-	-	-	-	-	-	-	-	-	-	-	-
12	-	TS	Sorgente II strada S. Doriglio-Prebenico (rio II canale), S. Doriglio della Valle	09/05/91	-	-	-	-	-	-	-	-	-	-	-	-	-
13	-	TS	Sorgente II del Rio Bovedo (fanno SI), a monte di via Righetti, Bovedo, Trieste	17/12/98	-	-	-	-	-	-	-	-	-	-	-	-	-
14	-	TS	Sorgente nel canale (Potok) a SW di Caressana, Valle dell'Osop, S. Doriglio della Valle	04/01/99	-	-	-	-	-	-	-	-	-	-	-	-	-
15	S0006	TS	Sorgente superiore del Rio del Sangue, Pese, S. Doriglio della Valle	24/04/99	-	-	-	-	-	-	-	-	-	-	-	-	-
16	-	TS	Stagno curcio n. 006, Colludrozza, Sgonico	29/04/78	-	-	-	-	-	-	-	-	-	-	-	-	-
17	S0044	TS	Stagno curcio n. 044 (stagno-cisterna), Villa Opicina (Ovcljak), Trieste	03/08/95	-	-	-	-	-	-	-	-	-	-	-	-	-
18	S0044	TS	Stagno curcio n. 044 (stagno-cisterna), Villa Opicina (Ovcljak), Trieste	06/09/98	-	-	-	-	-	-	-	-	-	-	-	-	-
19	ETP02/030	GO	T. Rosandra, Francovec, S. Doriglio della Valle	03/10/86	6	-	-	-	-	-	-	-	-	-	-	-	-
20	ETP02/010	GO	Canale Brancolo, Palazzato, S. Canzian d'Isonzo	29/09/86	-	-	-	-	-	-	-	-	-	-	-	-	-
21	ETP02/010	GO	Canale Brancolo, Palazzato, S. Canzian d'Isonzo	29/09/86	-	-	-	-	-	-	-	-	-	-	-	-	-
22	ETP02/010	GO	Canale Brancolo, Palazzato, S. Canzian d'Isonzo	29/09/86	-	-	-	-	-	-	-	-	-	-	-	-	-
23	ETP02/008	GO	Canale dei Cliei, Cliei, S. Canzian d'Isonzo	29/09/86	-	-	-	-	-	-	-	-	-	-	-	-	-
24	ETP02/004	GO	Canale dell' Idrovora Nuova, Le Borlece, Sauranzano	29/09/86	-	-	-	-	-	-	-	-	-	-	-	-	-
25	ETP02/009	GO	Canale delle Grode, S. Canzian d'Isonzo, S. Canzian d'Isonzo	29/09/86	-	-	-	-	-	-	-	-	-	-	-	-	-
26	ETP02/005	GO	Canale Risata, a valle depuratore Sauranzano, Sauranzano	29/09/86	-	-	-	-	-	-	-	-	-	-	-	-	-
27	ETP02/005	GO	Canale Risata, a valle depuratore Sauranzano, Sauranzano	29/09/86	-	-	-	-	-	-	-	-	-	-	-	-	-
28	ETP02/005	GO	Canale Risata, a valle depuratore Sauranzano, Sauranzano	29/09/86	-	-	-	-	-	-	-	-	-	-	-	-	-
29	ETP01/003	GO	Canale Risata, 200 m a monte depuratore, Sauranzano	29/09/86	-	-	-	-	-	-	-	-	-	-	-	-	-
30	ETP01/003	GO	Fiume Isonzo, Ponte IX Agosto, Gorizia	20/09/89	-	-	-	-	-	-	-	-	-	-	-	-	-
31	ETP01/003	GO	Fiume Isonzo, Ponte IX Agosto, Gorizia	20/09/89	-	-	-	-	-	-	-	-	-	-	-	-	-
32	ETP01/003	GO	Fiume Isonzo, Ponte IX Agosto, Gorizia	20/09/89	-	-	-	-	-	-	-	-	-	-	-	-	-
33	ETP01/003	GO	Fiume Isonzo, Ponte IX Agosto, Gorizia	20/09/89	-	-	-	-	-	-	-	-	-	-	-	-	-
34	ETP01/004	GO	Fiume Isonzo, circa 1800 m a monte del Ponte del Torriione, Gorizia	20/09/89	-	-	-	-	-	-	-	-	-	-	-	-	-
35	ETP02/012	GO	Fiume Isonzo, Poggio Terza Armata, Sagraado d'Isonzo	22/09/89	-	-	-	-	-	-	-	-	-	-	-	-	-
36	ETP02/028	GO	Fiume Isonzo, ponte Strada per Grado, S. Canzian d'Isonzo	02/10/86	-	-	-	-	-	-	-	-	-	-	-	-	-
37	ETP02/028	GO	Fiume Isonzo, ponte Strada per Grado, S. Canzian d'Isonzo	30/09/86	-	-	-	-	-	-	-	-	-	-	-	-	-
38	ETP01/010	GO	Fiume Iudrio, Dolegna, Dolegna	01/02/86	-	-	-	-	-	-	-	-	-	-	-	-	-
39	-	GO	Grotta presso Sagraado (VG 4112), Sagraado d'Isonzo	08/10/83	-	-	-	-	-	-	-	-	-	-	-	-	-
40	VG4112	GO	Lago di Dobberdo, riva E, Dobberdo del Lago	08/10/83	-	-	-	-	-	-	-	-	-	-	-	-	-
41	-	GO	Lago di Pietrassus, sorgenti, Montfalcone	04/07/04	-	-	-	-	-	-	-	-	-	-	-	-	-
42	-	GO	Palude delle Muselle, Le Muselle, Cave di Selz, Ronchi dei Legionari	04/07/04	-	-	-	-	-	-	-	-	-	-	-	-	-

N°	CODICE	PROV	STAZIONE	DATA	<i>H. stagnalis</i>	<i>G. complanata</i> s.l.	<i>G. (B.) pulchra</i>	<i>A. heterotha</i> s.l.	<i>H. marginata</i>	<i>Pisticia</i> sp.	<i>H. medialis</i>	<i>H. sanguisuga</i>	<i>E. octoculata</i>	<i>E. testaceo</i>	<i>D. cf. punctata</i>	<i>D. karensis</i>	<i>Epiplatididae</i> g. sp.
240	UD058	UD	T. Cornappo, Nimis, Nimis	09/08/95													1
241	UD058	UD	T. Cornappo, Nimis, Nimis	09/08/95													1
242	UD077	UD	T. Corno, Buia, Buia	11/02/92													20
243	UD077	UD	T. Corno, Buia, Buia	11/02/92													1
244	UD078	UD	T. Corno, a valle di Farla, Malano	11/02/92													1
245	UD078	UD	T. Corno, a valle di Farla, Malano	11/02/92													1
246	UD013	UD	T. Degano, confluenza Margo - ponte SS, Coneglians	17/07/95													1
247	UD060	UD	T. Grivò, Faedis, Faedis	05/08/91													1
248	UD060	UD	T. Grivò, Faedis, Faedis	05/08/91													1
249	UD060	UD	T. Grivò, Faedis, Faedis	28/05/95													1
250	UD059	UD	T. Grivò, Faedis, Faedis	09/08/95													1
251	UD059	UD	T. Grivò, Faedis, Faedis	09/08/95													1
252	ETP10/028	UD	T. Malina, a valle Atimis, Atimis	03/07/85													1
253	ETP10/028	UD	T. Malina, a valle Atimis, Atimis	03/07/85													1
254	UD055	UD	T. Torre, Case Poelade - Vedronza, Lusevera	09/08/95													1
255	UD056	UD	T. Torre, Ponte di Nimis, Nimis	09/08/95													1
256	ETP03/037	PN	Canale Brenella, 100 m a monte confluenza Noncello, Porcia	12/09/86													1
257	ETP03/037	PN	Canale Brenella, 100 m a monte confluenza Noncello, Porcia	12/09/86													1
258	ETP07/064	PN	Canale Caomaggiore, Marignana, Sesto al Reghena	09/05/84													1
259	ETP07/062	PN	Canale Nave, Nave, Fontanafredda	24/09/86													1
260	ETP07/062	PN	Canale Redenia, Tiedo, Chions	02/05/84													1
261	ETP07/062	PN	Canale Redenia, Tiedo, Chions	12/09/86													1
262	ETP03/031	PN	Emisario Burrida, Lago Burrida, Pordenone	12/09/86													1
263	ETP03/031	PN	Emisario Burrida, Lago Burrida, Pordenone	12/09/86													1
264	ETP03/001	PN	Fiume Fiume, ponte SS 13, Zoppola	11/09/86													1
265	ETP03/001	PN	Fiume Fiume, ponte SS 13, Zoppola	11/09/86													1
266	ETP03/001	PN	Fiume Fiume, ponte SS 13, Zoppola	11/09/86													1
267	ETP03/001	PN	Fiume Fiume, ponte SS 13, Zoppola	11/09/86													1
268	ETP03/009	PN	Fiume Fiume, Ocenico Superiore, Zoppola	11/09/86													1
269	ETP03/041	PN	Fiume Fiume, Fiumesin (strada Pordenone - Azzano X), Azzano X	31/03/87													1
270	ETP03/041	PN	Fiume Fiume, Fiumesin (strada Pordenone - Azzano X), Azzano X	31/03/87													1
271	ETP04/003	PN	Fiume Fiume, Passiano, via Belvedere, Passiano	17/09/86													1
272	ETP04/003	PN	Fiume Fiume, Passiano, via Belvedere, Passiano	17/09/86													1
273	ETP04/009	PN	Fiume Fiume, Bugnera centro, Bugnera	24/09/86													1
274	ETP04/009	PN	Fiume Fiume, Bugnera centro, Bugnera	24/09/86													1
275	ETP04/023	PN	Fiume Fiume, Fiumesin (strada Pordenone - Azzano X), Azzano X	24/09/86													1
276	ETP04/032	PN	Fiume Fiume, Fiumesin (strada Pordenone - Azzano X), Azzano X	24/09/86													1
277	ETP04/032	PN	Fiume Fiume, Fiumesin (strada Pordenone - Azzano X), Azzano X	24/09/86													1
278	ETP04/032	PN	Fiume Fiume, Fiumesin (strada Pordenone - Azzano X), Azzano X	24/09/86													1
279	ETP04/035	PN	Fiume Fiume, Fiumesin (strada Pordenone - Azzano X), Azzano X	31/03/87													1
280	ETP03/040	PN	Fiume Fiume, Fiumesin (strada Pordenone - Azzano X), Azzano X	31/03/87													1
281	ETP03/040	PN	Fiume Fiume, Fiumesin (strada Pordenone - Azzano X), Azzano X	31/03/87													1
282	ETP03/040	PN	Fiume Fiume, Fiumesin (strada Pordenone - Azzano X), Azzano X	31/03/87													1
283	ETP03/040	PN	Fiume Fiume, Fiumesin (strada Pordenone - Azzano X), Azzano X	31/03/87													1
284	ETP04/005	PN	Fiume Fiume, Fiumesin (strada Pordenone - Azzano X), Azzano X	17/09/86													1
285	ETP04/005	PN	Fiume Fiume, Fiumesin (strada Pordenone - Azzano X), Azzano X	17/09/86													1
286	ETP04/005	PN	Fiume Fiume, Fiumesin (strada Pordenone - Azzano X), Azzano X	17/09/86													1
287	ETP04/005	PN	Fiume Fiume, Fiumesin (strada Pordenone - Azzano X), Azzano X	17/09/86													1
288	ETP03/025	PN	Fiume Noncello, sorgenti (collettore), Cordenons	12/09/86													1

N°	CODICE	PROV	STAZIONE	DATA	<i>H. stagnalis</i>	<i>G. complanata</i> s.l.	<i>G. (B.) pulchra</i>	<i>A. heterochila</i> s.l.	<i>H. marginata</i>	<i>Pisticia</i> sp.	<i>H. mediterranea</i>	<i>H. sanguinaria</i>	<i>E. octoculata</i>	<i>E. testacea</i>	<i>D. cf. punctata</i>	<i>D. karensis</i>	<i>Epiplatidae</i> g. sp.
289	ETP03/025	PN	Fiume Noncello, sorgenti (collettore), Cordenons	12/09/86													1
290	ETP03/039	PN	Fiume Noncello, Valtenoncello, Pordenone	31/03/87													1
291	ETP03/039	PN	Fiume Noncello, Valtenoncello, Pordenone	31/03/87													1
292	ETP03/034	PN	Fiume Sentron, Ponte Tiedo, Porcia	11/09/86													1
293	ETP03/012	PN	Fiume Sile, Strada Baunia - S.Vito, Fiume Veneto	11/09/86													1
294	ETP07/066	PN	Fosso Cornia, Villotta, Chions	10/05/84													1
295	ETP07/066	PN	Fosso Cornia, Villotta, Chions	10/05/84													1
296	ETP04/002	PN	Fosso Cornia, Villotta, Chions	17/09/86													1
297	ETP04/008	PN	Fosso Savalon, confine comunale Prata - Bugnera, Bugnera	17/09/86													1
298	ETP04/008	PN	Fosso Savalon, confine comunale Prata - Bugnera, Bugnera	17/09/86													1
299	ETP04/008	PN	Fosso Savalon, confine comunale Prata - Bugnera, Bugnera	17/09/86													1
300	ETP04/008	PN	Fosso Savalon, confine comunale Prata - Bugnera, Bugnera	17/09/86													1
301	ETP04/007	PN	Fosso Taglio (o Maron), Maron, Bugnera	17/09/86													1
302	ETP04/007	PN	Fosso Taglio (o Maron), Maron, Bugnera	17/09/86													1
303	ETP04/007	PN	Fosso Taglio (o Maron), Maron, Bugnera	17/09/86													1
304	ETP04/006	PN	Rio Baidor, Prata di Sopra, Prata	17/09/86													1
305	ETP04/030	PN	Rio Fontaniva, 600 m a monte confluenza F. Livenza, Polcenigo	24/09/86													1
306	ETP04/030	PN	Rio Fontaniva, 600 m a monte confluenza F. Livenza, Polcenigo	24/09/86													1
307	ETP04/030	PN	Rio Fontaniva, 600 m a monte confluenza F. Livenza, Polcenigo	24/09/86													1
308	ETP04/019	PN	Rio Grava, 300 m a monte confluenza R. Gravetta, Sacile	11/09/86													1
309	ETP03/010	PN	Rio Gromania (o Fontanive), Ocenico Superiore, Zoppola	26/04/84													1
310	ETP07/034	PN	Rio Lin - Rio di Villotta, Bosc di S. Giovanni, Casarsa	09/05/84													1
311	ETP07/034	PN	Rio Lin - Rio di Villotta, Bosc di S. Giovanni, Casarsa	09/05/84													1
312	ETP07/065	PN	Rio Maritini, Ponte Sigalotti, Sesto al Reghena	12/09/86													1
313	ETP07/012	PN	Rio Maritini, Ponte Sigalotti, Sesto al Reghena	12/09/86													1
314	ETP03/036	PN	Rio Molinata, Pieve, Porcia	12/09/86													1
315	ETP03/036	PN	Rio Molinata, Pieve, Porcia	12/09/86													1
316	ETP03/036	PN	Rio Molinata, Pieve, Porcia	12/09/86													1
317	ETP03/036	PN	Rio Molinata, Pieve, Porcia	12/09/86													1
318	ETP03/036	PN	Rio Molinata, Pieve, Porcia	12/09/86													1
319	ETP04/024	PN	Rio Orzaia, Nave, Fontanafredda	24/09/86													1
320	ETP04/024	PN	Rio Orzaia, Nave, Fontanafredda	24/09/86													1
321	ETP04/015	PN	Rio Pansa, S. Giovanni del Tempio, Sacile	01/02/89													1
322	ETP04/015	PN	Rio Pansa, S. Giovanni del Tempio, Sacile	01/02/89													1
323	ETP04/038	PN	Rio Pansa, 300 m a valle scarico depuratore, Fontanafredda	01/02/89													1
324	ETP04/038	PN	Rio Pansa, 300 m a valle scarico depuratore, Fontanafredda	01/02/89													1
325	ETP04/038	PN	Rio Pansa, 300 m a valle scarico depuratore, Fontanafredda	01/02/89													1
326	ETP04/039	PN	Rio Pansa, 20 m a valle scarico depuratore, Fontanafredda	01/02/89													1
327	ETP04/039	PN	Rio Pansa, 20 m a valle scarico depuratore, Fontanafredda	01/02/89													1
328	ETP04/040	PN	Rio Pansa, a monte scarico depuratore, Fontanafredda	01/02/89													1
329	ETP04/040	PN	Rio Pansa, a monte scarico depuratore, Fontanafredda	01/02/89													1
330	ETP04/017	PN	Rio Pasetta, ponte SS 13, Sacile	24/09/86													1
331	ETP04/017	PN	Rio Pasetta, ponte SS 13, Sacile	24/09/86													1
332	ETP04/017	PN	Rio Pasetta, ponte SS 13, Sacile	24/09/86													1
333	ETP04/016	PN	Rio Pianca, S. Giovanni del Tempio, Sacile	24/09/86													1
334	ETP04/016	PN	Rio Pianca, S. Giovanni del Tempio, Sacile	24/09/86													1
335	ETP04/025	PN	Rio Piccol, Ranzano, Fontanafredda	24/09/86													1
336	ETP04/025	PN	Rio Piccol, Ranzano, Fontanafredda	24/09/86													1
337	ETP04/025	PN	Rio Piccol, Ranzano, Fontanafredda	24/09/86													1
338	ETP04/025	PN	Rio Piccol, Ranzano, Fontanafredda	24/09/86													1

N°	CODICE	PROV	STAZIONE	DATA	H. stagnalis	G. complanata s.l.	G. (B.) pullosa	A. heteroclitus s.l.	H. marginatus	Physicola sp.	H. medicinalis	H. sanguisuga	E. octoculata	E. testacea	D. cf. punctata	D. krasensis	Erpobdellidae gen. sp.
339	ETP04/0004	PN	Rio Pontal, Pasiano, Pasiano	17/09/86	1	1	1	1	1	1	1	1	1	1	1	1	1
340	ETP03/0338	PN	Rio Repolte, 300 m a monte confluenza Noncello, Porcia	12/09/86	1	1	1	1	1	1	1	1	1	1	1	1	1
341	ETP07/0019	PN	Rio Rosco, confluenza F. Scastian, S. Vito al T.	21/04/84	1	1	1	1	1	1	1	1	1	1	1	1	1
342	ETP07/0019	PN	Rio Rosco, confluenza F. Scastian, S. Vito al T.	21/04/84	1	1	1	1	1	1	1	1	1	1	1	1	1
343	ETP04/0027	PN	Rio Rosolina, Ranzano, Fontanafredda	24/09/86	1	1	1	1	1	1	1	1	1	1	1	1	1
344	ETP03/0018	PN	Rio Ruti, Risi, Fiume Veneto	11/09/86	1	1	1	1	1	1	1	1	1	1	1	1	1
345	ETP03/0018	PN	Rio Ruti, Risi, Fiume Veneto	11/09/86	1	1	1	1	1	1	1	1	1	1	1	1	1
346	ETP04/0029	PN	Rio Schautit, Nave, Fontanafredda	24/09/86	1	1	1	1	1	1	1	1	1	1	1	1	1
347	ETP04/0029	PN	Rio Schautit, Nave, Fontanafredda	24/09/86	1	1	1	1	1	1	1	1	1	1	1	1	1
348	ETP04/0021	PN	Rio Sluga, Fiaschetti, Caneva	24/09/86	1	1	1	1	1	1	1	1	1	1	1	1	1
349	ETP04/0021	PN	Rio Sluga, Fiaschetti, Caneva	24/09/86	1	1	1	1	1	1	1	1	1	1	1	1	1
350	ETP03/0020	PN	Rio Sluga, Fiaschetti, Caneva	24/09/86	1	1	1	1	1	1	1	1	1	1	1	1	1
351	ETP03/0020	PN	Rio Sluga, Fiaschetti, Caneva	24/09/86	1	1	1	1	1	1	1	1	1	1	1	1	1
352	ETP03/0020	PN	Rio Visol (o Venson), Colonia, Cordenons	12/09/86	1	1	1	1	1	1	1	1	1	1	1	1	1
353	ETP07/0009	PN	Roggia Belvedere, confine con il Veneto, Cordovado	19/04/84	1	1	1	1	1	1	1	1	1	1	1	1	1
354	ETP03/0007	PN	Roggia Belvedere, confine con il Veneto, Cordovado	19/04/84	1	1	1	1	1	1	1	1	1	1	1	1	1
355	ETP03/0019	PN	Roggia Brentella, 200 m a monte confluenza F. Meduna, Zoppola	11/09/86	1	1	1	1	1	1	1	1	1	1	1	1	1
356	ETP03/0019	PN	Roggia Brentella, 200 m a monte confluenza F. Meduna, Zoppola	11/09/86	1	1	1	1	1	1	1	1	1	1	1	1	1
357	ETP07/0028	PN	Roggia Brentella, 200 m a monte confluenza F. Meduna, Zoppola	11/09/86	1	1	1	1	1	1	1	1	1	1	1	1	1
358	ETP07/0028	PN	Roggia dei Molini, derivazione dal C. Cellina - Meduna, S. Martino al T.	26/04/84	1	1	1	1	1	1	1	1	1	1	1	1	1
359	ETP07/0028	PN	Roggia dei Molini, derivazione dal C. Cellina - Meduna, S. Martino al T.	26/04/84	1	1	1	1	1	1	1	1	1	1	1	1	1
360	ETP07/0028	PN	Roggia dei Molini, derivazione dal C. Cellina - Meduna, S. Martino al T.	26/04/84	1	1	1	1	1	1	1	1	1	1	1	1	1
361	ETP07/0002	PN	Roggia del Molino, confluenza con Roggia di Mezzo, Morsano al T.	19/04/84	1	1	1	1	1	1	1	1	1	1	1	1	1
362	ETP07/0002	PN	Roggia del Molino, confluenza con Roggia di Mezzo, Morsano al T.	19/04/84	1	1	1	1	1	1	1	1	1	1	1	1	1
363	ETP07/0002	PN	Roggia del Molino, confluenza con Roggia di Mezzo, Morsano al T.	19/04/84	1	1	1	1	1	1	1	1	1	1	1	1	1
364	ETP04/0014	PN	Roggia Guzza (o Rosta), Fontanafredda, via Pieve, Fontanafredda	24/09/86	1	1	1	1	1	1	1	1	1	1	1	1	1
365	ETP04/0014	PN	Roggia Guzza (o Rosta), Fontanafredda, via Pieve, Fontanafredda	24/09/86	1	1	1	1	1	1	1	1	1	1	1	1	1
366	ETP07/0070	PN	Roggia Porchiarina, confluenza con Rg. Vignola, S. Vito al T.	10/05/84	1	1	1	1	1	1	1	1	1	1	1	1	1
367	ETP07/0001	PN	Roggia Ramonchiaro, strada per Portogruaro, Morsano al T.	19/04/84	1	1	1	1	1	1	1	1	1	1	1	1	1
368	ETP07/0004	PN	Roggia Ramonchiaro, S. Paolo, Morsano al T.	19/04/84	1	1	1	1	1	1	1	1	1	1	1	1	1
369	ETP07/0016	PN	Roggia Versa, Savorgnano, S. Vito al T.	17/06/86	1	1	1	1	1	1	1	1	1	1	1	1	1
370	ETP07/0016	PN	Roggia Versa, Savorgnano, S. Vito al T.	17/06/86	1	1	1	1	1	1	1	1	1	1	1	1	1
371	ETP07/0016	PN	Roggia Versa, Savorgnano, S. Vito al T.	17/06/86	1	1	1	1	1	1	1	1	1	1	1	1	1
372	ETP07/0018	PN	Roggia Versa, Vissignano, Sesto al Reghedo	15/10/86	1	1	1	1	1	1	1	1	1	1	1	1	1
373	ETP07/0018	PN	Roggia Versa, Vissignano, Sesto al Reghedo	15/10/86	1	1	1	1	1	1	1	1	1	1	1	1	1
374	ETP07/0079	PN	Roggia Versa, a monte scarico depuratore S. Vito, S. Vito al T.	15/10/86	1	1	1	1	1	1	1	1	1	1	1	1	1
375	ETP07/0079	PN	Roggia Versa, a monte scarico depuratore S. Vito, S. Vito al T.	15/10/86	1	1	1	1	1	1	1	1	1	1	1	1	1
376	ETP07/0079	PN	Roggia Versa, a monte scarico depuratore S. Vito, S. Vito al T.	15/10/86	1	1	1	1	1	1	1	1	1	1	1	1	1
377	ETP07/0080	PN	Roggia Versa, 20 m a valle scarico depuratore S. Vito, S. Vito al T.	15/10/86	1	1	1	1	1	1	1	1	1	1	1	1	1
378	ETP07/0080	PN	Roggia Versa, 20 m a valle scarico depuratore S. Vito, S. Vito al T.	15/10/86	1	1	1	1	1	1	1	1	1	1	1	1	1
379	ETP07/0080	PN	Roggia Versa, 20 m a valle scarico depuratore S. Vito, S. Vito al T.	15/10/86	1	1	1	1	1	1	1	1	1	1	1	1	1
380	ETP07/0080	PN	Roggia Versa, 20 m a valle scarico depuratore S. Vito, S. Vito al T.	15/10/86	1	1	1	1	1	1	1	1	1	1	1	1	1
381	ETP07/0080	PN	Roggia Versa, 20 m a valle scarico depuratore S. Vito, S. Vito al T.	15/10/86	1	1	1	1	1	1	1	1	1	1	1	1	1
382	ETP07/0080	PN	Roggia Versa, 20 m a valle scarico depuratore S. Vito, S. Vito al T.	15/10/86	1	1	1	1	1	1	1	1	1	1	1	1	1
383	ETP07/0080	PN	Roggia Versa, 20 m a valle scarico depuratore S. Vito, S. Vito al T.	15/10/86	1	1	1	1	1	1	1	1	1	1	1	1	1
384	ETP07/0080	PN	Roggia Vidmanica, 1 km a Sud delle risogge, Morsano al T.	21/10/87	1	1	1	1	1	1	1	1	1	1	1	1	1
385	ETP06/0021	PN	Scolo Arcon, Pungat, Pravisdomini	19/04/84	1	1	1	1	1	1	1	1	1	1	1	1	1
386	ETP06/0021	PN	T. Cosa, latteria di Travesio, Travesio	31/03/93	1	1	1	1	1	1	1	1	1	1	1	1	1

Dina krasensis (SKET, 1968)

Syn.: *Trocheta bykowskii krasense* SKET, 1968

Dina krasensis was found in some localities in the Dinaric part of Friuli-Venezia Giulia, in the immediate vicinities of the known parts of its distribution area, which is S and SW (i.e. Dinaric) Slovenia and Croatian Istra-Istria.

Our recent molecular and morphological investigations (TRONTEJ, 1997; TRONTEJ & SKET, in press) have shown that the taxa *Trocheta bykowskii bykowskii* (GEDROYC) and *T. b. krasense* SKET belong to two well separated phylogenetic lineages, which can be identified as *Trocheta* and *Dina*, respectively. Nevertheless, they are in fact not morphologically distinct enough to allow a clear identification of every specimen. The geographical position of the samples studied here makes their appartenance to *Dina krasensis* very certain.

Erpobdellidae gen. sp. indet.

A number of samples contained specimens, mostly juveniles, which could only be identified as *Erpobdellidae* gen. sp. (reported in tab. II). Since the family as such is more or less omnipresent, there is no reason to discuss these data.

Discussion and conclusions

13 leech species were collected in continental waters of the Friuli-Venezia Giulia region (tab. I). For the most important of them the exact taxonomical identification could not be performed.

It is remarkable that with one exception, all leeches were collected in lowland streams, mainly below 200 m a.s.l. *Dina cf. punctata* is the only one with a distribution, although a limited one, also in valleys cut into southern slopes of the Southern Calcareous Alps. It should be noted that this limitation to lowlands is only characteristic for this area while elsewhere, even in the neighbor Slovenia, all these species may reach higher elevations. Among the "lowland species", *Dina krasensis* is an evident Dinaric element while other species (with exception of *Helobdella*) avoid the Dinaric district. The relationship between the distributions of *E. octoculata* and *D. cf. punctata* is quite peculiar: in most parts of Europe, including Slovenia, the former is regarded as the most common species and it is more or less replaced by *Dina* in Friuli-Venezia Giulia, while exhibiting a more limited range itself.

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IZVLEČEK - V bogati zbirki vzorcev iz tekočih voda Furlanije-Julijske krajine, SV Italija, je bilo moč identificirati 11 taksonov pijavk. *Dina cf. punctata* ja daleč najbolj razširjena, medtem ko je *Erpobdella octoculata* veliko bolj omejena kot je običajno v Srednji Evropi. Zaradi nekaterih nerešenih taksonomskih

vprašanj v rodovih *Glossiphonia*, *Piscicola* in *Dina*, materiala ni moc dokončno taksonomsko klasificirati.

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