

A HISTORICAL SIGNIFICANCE OF EGON PRETNER FOR BIOLOGY

ZGODOVINSKI POMEN EGONA PRETNERJA ZA BIOLOGIJO

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Izvleček

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Tanja Pipan: Zgodovinski pomen Egon Pretnerja za biologijo

Egon Pretner (1896-1982), čeprav samouk, je bil v mednarodnem merilu eden najboljših poznavalcev evropskega krasa in živali v kraških jamah, še posebej hroščev. Odkril je nad sto novih živalskih vrst (migmatkarjev, polžev, dvojenog in zlasti hroščev), preko 20 vrst pa se jih imenuje po njem. Obiskal je 1492 jam: 649 na Slovenskem, 773 v drugih deželah Balkana, 70 v drugih evropskih državah. Bil je neutrudljiv terenski delavec, slovenski in celotni balkanski kras, pa tudi kraške predele v sosednji Italiji in Avstriji, je poznal bolje kot kdorkoli. Napisal je nad 70 razprav in člankov v domačih in tujih znanstvenih revijah. Za opravljeno delo je prejel mnoga društvena priznanja in odlikovanja.

Ključne besede: zgodovina speleologije, biospeleologija, *Coleoptera*, Pretner E.

Abstract

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Tanja Pipan: A historical significance of Egon Pretner for biology

On the international scale Egon Pretner (1896-1982), self-taught person, was one of the best authorities of the European karst and animals in the caves, beetles in particular. He discovered more than hundred new animal species (ciliates, gastropods and arthropods, and notably the beetles), more than 20 species are named after him. He visited 1492 caves: 649 in Slovenia, 773 in other parts of Balkans and 70 in other European countries. He was a tireless expert in the field of knowing better than anybody the Slovene and Balkan karst and also karst regions in neighbouring countries of Italy and Austria. He published more than 70 papers and articles in Slovene and foreign scientific magazines. For his work he gained numerous awards and medals from learned societies.

Key words: history of speleology, biospeleology, *Coleoptera*, Pretner E.

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TO LIGHT UP LIFE IN DARKNESS

It is justified to call Postojnska jama "the cradle of biospeleology". In 1831 the cave guide Luka Čeč discovered on Calvary (Velika Gora) in Postojnska jama the first cave beetle *Leptodirus hochenwarti* (Schmidt 1831). By 1860 researchers discovered in Slovenia almost all the genera and most of the species of cave beetles. The studies of our cave fauna began anew in the beginning of the 20 th century when J. Müller was appointed professor at the grammarschool in Triest. Full of zeal he very systematically explored the caves in the Trieste karst, Istria and the Gorica karst. He educated a lot of entomologists, among others Egon Pretner who attended the grammarschool at this time. During field excursions he met many distinguished European scientists and he preserved these contacts during all the time of his research activity. Among the others they were: Fr. Blasich, O. Chenda, E. Gridelli, Vl. Kodrič, J. Krekich-Strassoldo, Ljudevit and Vladimir Kuščer, C. Lona, C. de Mayer, Carlo and his son Giorgio Ravasini, A. Schatzmayr, H. Springer and St. Gaberščik. E. Pretner also maintained friendly and professional contacts with the following experts: B. Drovenik (Ljubljana), Cl. Besuchet (Geneva), J.



Fig. 1: At the entrance of Jelenca jama (Kras), 13th November 1910. E. Pretner, 14 years old, is in the first plan, pulling the rope (photo Dr. Lennig).

Bole (Ljubljana), P. Brandmayr (Trieste), S. Brelih (Ljubljana), G. Castellini (Firenze), M. Seguin (France), B. Čurčić (Beograd), P. R. Deeleman (Holland), C. D. Deboutteville (France), G. Drioli (Trieste), D. Mihajlović (Valjevo), H. Frank (Laichingen), D. Godard (France), A. Gspan (Ljubljana), B. Hauser (Geneva), R. Husson (France), B. Jalzić (Zagreb), G. Karaman (Titograd), R. Mezzena (Trieste), S. Mikšić (Sarajevo), E. Pichl (Trieste), L. Quaia (Italy), I. Rakovec (Slovenia), F. Anelli (Italy), M. E. Schmidt (Austria), R. Seemann (Austria), J. M. Thibaud (France), T. Tischler (Germany), M. Vachon (France).

An interesting story is told by B. Drovenik about cave beetle collecting at Dobrovlje. He was helped by Pretner who was the only one who succeeded in finding several specimens of the species *Anophtalmus erebus erebus* (Kraus), *A. schaumii knirschi* (Winkler) and *Aphaenopodius treulandi cephalotes* (Knirsch) although he used the same method as Drovenik and others. Before the last World War the beetles of Slovene caves were scientifically studied mostly by J. Müller, R. Jeannel and A. Winkler and after the war by E. Pretner. The interest of the Slovene biologists in cavernicolous fauna became very strong after the Second War. The biologists of Ljubljana University organised a series of excursions to the caves of former Yugoslavia and brought back very interesting material. By systematic researches they discovered new species and subspecies and got to know the geographical distribution of cave beetles. According to Pretner it is interesting zoogeographically that in the Dinaric part of Dolenjska the beetle's species *Antisphodrus schreibersi* (Küster), and in the mountains between Postojna basin and the Notranjska Reka *Leptodirus* are not found, and that in some caves there live together two species of the genus *Bathyscimorphus* and two species of *Antisphodrus* (*A. cavicola* and *A. schreibersi*). Furthermore, "the centre of Carniola's fauna" is in fact located around Plitvice (Croatia) while almost all the genera described of Slovenia (*Leptodirus*, *Astagobius*, *Anophtalmus*, *Bathyscimorphus*, *Machaerites* and *Troglorrhynchus*) extend far to the south over the Slovene-Croatian border. In the years 1934-1938 Wolf's *Animalium Cavernarum Catalogus* was being published with a review of cave fauna, location of finding sites and references for each animal. In this voluminous work the cave fauna of Slovenia is included, studied minutely and in detail, mostly due to Pretner's research work and publications (Pretner 1974b).

Pretner's first published paper is "Neue Hydrophylliden aus dem örtlichen Mittelmeergebiet"; in 1930 two papers were published in Italian and the next year another three. However it was not until his undisturbed professional work in Postojna, that he could dedicate himself entirely to research (mostly to biospeleology and entomology) to such an extent that he became an expert in karst all over Yugoslavia and in particular on the underground fauna. Pretner also knew the karst landscapes elsewhere in Europe, in Italy, Austria, France, Romania, Bulgaria and so on, and he has taken part not only in all speleological congresses in Yugoslavia but also in numerous international congresses

where he usually presented an interesting and fundamental communication. Thus he found at home and abroad a large number of followers (Pirjevec - Rebula 1986).

Pretner's researches in the fauna of Postojnska jama were extremely extensive. He introduced the scientific importance of the Postojna area as a centre of the classical karst. Many are grateful for his professional list of the underground animals that lived, and unfortunately only partially live still in Postojnska jama (Annex 1).

In the years 1970-1975 many reported about cave beetles appearing outside caves. Also in northern Italy and in Yugoslavia they appeared provided that the conditions of low temperature and high humidity were fulfilled. Due to this reason the abundance of beetles in some caves is smaller than under stones and rocks deeply buried in forest soil or higher in the mountains, close to the snow. In a special treatise E. Pretner explained this confusing phenomenon: "Primary habitat of cave beetles is fissures within the karst massif. From these cracks the animals migrate into the caves and thus the caves may be considered as their secondary habitat. To some extent some species may be found below rocks and stones but only in the period from autumn to spring, while they disappear during warmer seasons into cooler and more humid lower layers. Due to microclimate changes from cave to cave some species may be found at the entrance and other, deeper inside. The presence of animals is controlled by local temperature and humidity. Microclimatic conditions define whether the cave beetles are inside or outside the cave" (Pretner 1977a).

The fissures underground are a true living habitat of the underground fauna and from them they come into accessible caves or artificial channels. Abandoned mine passages, catacombs and artificial underground cavities of any kind offer a habitat to the underground fauna and E. Pretner (1979) pointed out that their importance must not be neglected as the fauna is there extremely rich. The underground organisms find much more stable living conditions within the fissures than are provided in large passages of the caves. E. Pretner composed a finding site list of underground coleopterological fauna in artificial caverns of Slovenia, Croatia, Austria, France and Italy (Annex 2).

When E. Pretner retired he deciphered the notes of L. Weirather relating to finding sites of cave beetles and prepared for the Natural Science Museum, Geneva, a 155 page study "Die Verdienste Leon Weiraths um die Biospöleologie, insbesondere Jugoslawiens, sein Höhlenkataster und seine Sammelplätze". L. Weirather was a famous biospeleologist who marked the finding sites of cave beetles by a number in his own cave register and by a false name of a cave or a region where the cave lies. By such a mode he protected himself against the concurrence although he disclosed to his friends, E. Pretner among them, the real name of a cave. The Natural Science Museum bought Weirather's collection of beetles together with all the notes and remarks which E. Pretner that he deciphered and studied from the German shorthand. He also

elaborated the manuscript "Travunia" of K. Absolon about the underground beetles of Bosnia and Hercegovina and succeeded in determining the location and names of almost all the finding sites cited by Absolon (Letopis SAZU 1975; Pretner 1974a).

A CHRONOLOGICAL REVIEW OF EGON PRETNER'S RESEARCH WORK FROM 1949 TO 1979

In 1949 Pretner published a newly discovered finding site of a species *Anophthalmus egonis* J. Müller. This species was then known only from the cave Pesjakov Buden, on the northern Pokljuka slopes; however he later found more than eight different caves containing this species. He discovered a new species *Anophthalmus besnicensis* that lives in Bidovčeva Luknja on the hill called Rovnik near Kranj. Probably he traced the same species in Častitljiva Jama, on the northern slopes of Jelovica. He discovered new finding sites for a species *Anophthalmus erebus* Krauss which is endemite for Kamnik Alps. At the same time he confirmed the finding site of a species *A. nivalis* G. Müller on Triglav discovered by A. Gspan. He discovered a new species *A. bukoveci* in Turkova Jama, near Logatec. E. Pretner described also the species *A. pubescens* Joseph and its subspecies. All of them live in the caves of Logatec plateau between Ljubljana Moor and Planinsko Polje. During his research work he dealt with the rules of nomenclature and, among others, explained the incorrectness in naming a species *Anophthalmus scopoli* Sturm while correct is Schmidt. In the literature all the coleopterists quoted Sturm as the author of a species *A. scopoli* with the exception only of Sturm himself (Pretner 1949a).



Fig. 2: E. Pretner in the entrance to Gorjanska jama near Bled, 21st May 1939 (photo F. Bar).

A species that E. Pretner discovered in a shaft Covška Prepad near Dobrovlje is called *Aphaobius* (*Aphaobiella*) *budnar-lipoglavšek*. He discovered a subspecies *A. (A.) b.-l. mozirjensis* in a small snow cave on Mozirska Planina in the eastern Kamnik Alps. At both finding sites he found also a species *Aphaobius milleri* Schmidt (subsp.). E. Pretner named newly discovered species after a curator of the Natural Science Museum, Ljubljana, Dr. A. Budnar-Lipoglavšek. *Näphaobius* (*Aphaobiella*) *tisnicensis* is a newly discovered species that Pretner found in many caves on a mountain Tisnik near Mislinja. This finding site lie on the northeastern border of the area in the Eastern Alps where cavernicolous silfides? live. The distance from it to the cave Covška Prepad, where *A. budnar-lipoglavški* was found, is about 18 km towards the south-west. In the hills above these finding sites Pretner did not find any example of the *Aphaobius* genus although in the caves and passages of the area live *Anophthalmus hitleri* Schreib. and *Laemostenus schreibersi* Küst. Pretner described and determined all the properties of silfides; it is important that he did not just cite the names but he described anatomic-morphological, physiological and ecological characteristics. He also composed a simple key for determining the genera of *Aphaobius* filogenetic species. According to Müller *Pretneria* is a subgenus of the genus *Aphaobius*; but Pretner determined *Pretneria* as an independent genus as it resembles *Orostygia* and *Oryotus* in respect to its habitat and represents an intermediate to these two genera. Pretner also represented the differences between the species *Pretneria latitarsi* G. Müller and *Pretneria saulii* G. Müller. During long years of researches he found out that an important living condition for a genus *Pretneria* is low temperature; this is why it lives only high in the mountains or in ice caves (Pretner 1949b).

Pretner reviewed the genera *Oryotus* L. Miller, *Pretneria* G. Müller, *Astagobius* Reitter and *Leptodirus* Schmidt (*Coleoptera*). He described new finding sites that he discovered and described known species of these genera, many of them new. He also composed a key for determining the species of *Oryotus* L. Miller genus, and keys for subspecies *Astagobius angustatus* and subspecies *Leptodirus hohenwartii* Schmidt. He also collected ecological data on all the three genera (Pretner 1955).

Pretner's researches of the rare genus *Aphaenopsis* confirmed that these organisms are rightly classified into philogenetic series that had baffled the researchers. Based on copulation organs of the male of *Aphaenopsis*, *Scotoplanetes* and *Adriaphaenops* genera Pretner started to solve the question whether three different genera are concerned or whether there is only one. He assessed the appurtenance to one genus only *Aphaenopsis* J. Müller and at the same time he investigated the distribution of this Dinaric genus spread in a wide area of the southern Bosnia and Montenegro. Due to confusion within the systematics of genus *Ceutmonocharis* Jeannel, Pretner decided to resolve it and he found a lot of irregularities. He determined to this genus five species and

subspecies: *C. freyeri* L. Müller, *C. netolitzkyi* J. Müller, *C. robici* Ganglbauer, *C. pusillus* Jeannel and *C. Matjasici* n.sp. He elaborated the key to determine these species and subspecies and their distribution (Pretner 1959a, b).

In spring 1959 a team of Karst Research Institute SAZU workers visited Prekonoška Pećina which was considered as the most beautiful cave of Serbia. A team surveyed the cave and prepared suggestions for its touristic display. In the final part of the cave Pretner discovered new blind species of the genus *Duvalius* (Coleoptera) and new genus of a blind arthropod *Serboiulus lucifigus* Strasser; both organisms are true troglobionts (Pretner 1959 c). Since 1963 only three superficial species of this genus were known from Macedonia. They were mostly found below the stones, at the altitude above 2000 m: *D. fodori* Scheibel, *D. peristericus* J. Müller and *D. macedonicus* J. Müller. In 1962 M. Gogala discovered the first true cavernicolous *Duvalius* in Macedonia *D. s. str. gogalai* (Pretner 1963 a).

E. Pretner was enthusiastic about the Montenegro karst, wild and interesting, as he said, and almost untouched from the speleological point of view. He gathered all the known data about previous researches in Montenegro listing explored and published caves, explored but not yet published caves unexplored caves. Due to his better understanding he classified the caves according to mountain massifs around bigger towns. He also noted a name of the cave, if it existed, and if the cave appeared in the literature under some other name he put it down also; he also quoted the author, the year and the name of publication where it was cited. In this way he wished to contribute his part in preparing a register of caves and shafts of Montenegro. Pretner studied the cave fauna in Boka Kotorska and around Titograd and Virpazar in 1933 and he discovered some new species. From 1955 to 1973 he organised shorter or longer biospeleological excursions to Montenegro, except for the years 1960, 1961 and 1964. In the years from 1955 to 1957 the Slovene and Serbian biospeleologists and cavers explored the shafts, caves and swallow-holes on Nikšičko Polje for a planned hydro-power station "Gornja Zeta". They together explored the cave Duboki Do and other caves in Lovćen. In the years 1965-67 Spéléo Club des Ardennes explored underground in Krivošije and Grahovo (Serbia). These explorations were controlled by E. Pretner who also carried out a lot of research excursions together with the family of Dr. P. R. Deeleman. They were good friends and they travelled and cooperated together a lot. In 1969 they explored 16 caves, in 1970 20, in 1971 30 and in 1975 17, altogether 85 speleological objects (Pretner 1961, 1977).

Skakavac is an active cave located in SE Bosnia biologically explored by E. Pretner in 1956. He found two new troglobionts: *Macrochaetosoma drinae* Strasser and a new subspecies of a beetle *Apholeuomus nudus* subsp. *petrovići*. In the sixties he studied the cave fauna in Serbia and composed a list of cavernicoles endemic in Serbia. Besides the discoveries in Prekonoška Pećina he found in Ravnička Jama a new diplopod *Bulgarosomacrucis* Strasser, and in

Mirkina Jama a diplopod *Typhoiulus albanicus* Attems; for the latter it was the northernmost finding site (Pretner 1963 b, c).

In the years 1964 and 1965 E. Pretner, together with J. Bole and S. Červek, succeeded in finding three new finding sites of a cave beetle *Speleodromus pluto* Reitter 1881. Till then it was only known that in the caves of Velebit. Like the genera *Astagobius* and *Pretneria* *Speleodromus* also lives only in caves with low temperature, i.e. in snow- and ice-caves at high altitudes. The animals walk over the walls and the rocks lying on the floor. Pretner reached these data by careful, long-lasting and patient sampling and contemporaneous measurement of physico-chemical parameters (Pretner 1966).

At the end of 1967 the Laneyrie's *Nouvelle classification des Bathysciinae* was published, based mostly on different internal structures of the male copulative organ. In 1970 Pretner wrote the remarks to the Laneyrie's catalogue which substantially differs from Jeannel's classical classification although the material was not yet studied in detail. The first part of his remarks appears on four typed pages and includes mostly corrections of finding sites, wrongly written names and deficiencies. Typical finding sites of numerous species of the subfam. *Bathysciinae* cited by the authors often differ from those, described in Pretner's list (*Catalogus Faunae Iugoslaviae*, III/6, Subfam. *Bathysciinae*, 1968). People who gathered the material were mostly foreigners, not understanding the language, and this is why they frequently cited the names of bigger places nearby or the names of the mountains. The gatherers, interested in cave beetle as dealers mostly, intentionally provided insufficient data about the finding sites. Pretner visited numerous caves and again he succeeded for many organisms in finding out the typical finding site and its correct name. He replaced German or Italian names by the original Slavs names. Remarks and completed literature were published on additional 7 typed pages (Pretner 1970 d).

In the huge cave Vrtlina in the southern Velebit Pretner, together with J. Bole and H. Freud, found with surprise that typical representatives of "Carniolian cave fauna" *Leptodirus* and *Astagobius* reach so far to the south. Biospeleological researches in Gorski Kotar, Croatian littoral, in Lika and Velebit indicated that this area, compared to the vicinity, bears the most similarity with the cave fauna of Slovenia, in respect to the genera *Bathysciotes* Jeannel, *Bathyscimorphus* Jeannel, *Parapropus* Ganglbauer, *Astagobius* Reitter, *Leptodirus* Schmidt, *Typlotrechus* J. Müller. From Dalmatia and Bosnia only *Neotrechus* J. Müller and *Duvalius* subgen. *Neoduvalius* J. Müller reach to Slovenia. Post-war researches showed that a line Zagreb - Krk (that had been set up by Jeannel in 1928) as the south-eastern border does not hold, as the cited genera appear also more to the south. E. Pretner (1970 c) described all these genera ecologically and morphologically in detail, sketched them, described the finding sites and noted locus typicus and added his own thoughts and conclusions based on the years of experience and observation.

Pretner is found also among those who studied the genus *Hydraena*; most of this material he collected in Slovenia, but also in Bosnia and Hercegovina and in Montenegro. He found out that hydraena are not known in some regions or they appear with single specimens only; he assessed that the subgenus *Haenydra* Rey is represented in the area of the former Yugoslavia by 17 species. Among them Pretner found and described 6 endemites living in relatively narrow area: *H. carniolica* sp. n. is known only in Gorenjska, *H. czernohorsky* (J. Müller) from southern Slovenia, Croatian Istria, around Triest and Gorica in Italy, *H. dalmatina* (Ganglbauer) from south Dalmatia and coastal belt of Montenegro, *H. montenegrina* sp.n. from central Montenegro, *H. devincta* Orchymont and *H. muelleri* Pretner from Slovenia and Venetian Slovenia in Italy (Pretner 1970 b).

In 1968 Pretner discovered a new species *Antrosedes longicollis* in the cave Kruščica near Ilidža in Bosnia. When he published the description of this new species he also corrected the name of a species *Blattodromus herculeus* Reitter which is an extreme rarity. He states (1970 a) that the right adjective form is *herculeus* and not *herculaneus*. The species that Pretner found belong to the caves of higher mountains.

He concluded the biospeleological explorations of the Croatian karst by publishing papers (1973, 1977, 1979) in which he provided for each area a short historical review of the explorations in chronological order of discoveries of new species and subspecies. He also described the caves and shafts and cited discovered species of beetles belonging to families *Carabidae*, *Bathysciinae*, *Pselaphidae*, *Scydmaenidae*, *Curulionidae*. In the systematic part he included for each species or subspecies a finding site, divided by areas. A shorter chapter is dedicated to zoogeography.

Egon Pretner was modest and hard-working up to the end, full of new projects that remain our responsibility to complete. We shall hold him in fond remembrance, full of gratitude for everything he has done for Slovene speleology and the young generations that he introduced with love and rich experiences into this marvellous world of the underground.

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ANNEX 1: THE LIST OF POSTOJNSKA JAMA FAUNA BY E. PRETNER

Deblo: SPUŽVE (*SPONGIARIA*)

Spongillidae, species

Deblo: NEČLENARJI (*AMERIA*)

Razred: Vrtinčarji (*Turbellaria*)

Dendrocoelum lacteum O. F. Müller

Dendrocoelum tubuliferum Beauchamp 1919

Fonticola albissima Vejdovsky

Fonticola dalmatina Stanković & Komarek

Razred: Mehkužci (*Mollusca*)

Podrazred: Polži (*Gastropoda*)

Carychium tridentatum Risso

Zospeum spelaeum Rossmässler 1837

Zospeum alpestre rosmässleri Wagner 1912

Oxychilus cellarius O. F. Müller

Frauenfeldia lacheineri Küster

Iglica luxurians Kuščer

Hauffenia subpiscinalis Kuščer

Acroloxus tetensi Kuščer

Deblo: MNOGOČLENARJI (POLYMERIA)

Poddeblo: Kolobarniki (*Annelida*)

Razred: Maloščetinci (*Oligochaeta*)

Nais communis Piguet

Tubifex velutinus Grube

Aulodrilus plurisetus Piguet

Eiseniella tetraedra Savigny

Helodrilus constrictus Rosa

Razred: Pijavke (*Hirudinea*)

Herpobdella octoculata Linné

Species

Poddeblo: Členonožci (*Arthropoda*)

Razred: Raki (*Crustacea*)

Nižji raki (*Entomostraca*)

Red: Listonožci (*Phyllopoda*)

Simocephalus vetulus O. F. Müller

Ceriodaphnia affinis Lilljeborg

Bosmina longirostris O. F. Müller

Rhynchotalona rostrata Koch

Pleuroxus laevis Sars

Red: Dvoklopniki (*Ostracoda*)

Cypria ophthalmica Jurine

Cypria pellucida O. F. Müller

Candona candida O. F. Müller

Candona trigonella Klie 1931

Typhlocypris schmeili Müller

Red: Ceponožci (*Copepod*)

Diaptomus spec. ?

Macrocyclops albidus Jurine

Eucyclops macruroides Lilljeborg

Eucyclops serrulatus Fischer

Eucyclops prasinus Fischer

Paracyclops fimbriatus Fischer

Paracyclops fimbriatus f. imminuta Kiefer

Cyclops bisetosus Rehberg

Cyclops charon Kiefer 1931

Cyclops languidoides f. gotica Kiefer 1931

Cyclops viridis Jurine

Mesocyclops dybowskyi Lande

Paracamptus schmeili Mrázek

Bryocamptus zschokkei Schmeil

- Echinocamptus georgevitchi* Chappuis
Echinocamptus unicus Kiefer 1931
Echinocamptus dacicus Chappuis
Echinocamptus luenensis Schmeil
Attheyella crassa Sars
Elaphoidella jeanneli Chappuis
Višji raki (*Malacostraca*)
- Red: Deseteronožci (*Decapoda*)
Astacaus fluviatilis Fabricius
Troglocaris anophthalmus Kollar
- Red: Enakonožci ali prašički (*Isopoda*)
Titanethes albus Schiödte 1848
Androniscus cavernarum tschammeri Strouhal
Asellus aquaticus Linné
Asellus aquaticus cavernicolus Racovitza 1925
Asellus istrianus Stammer
- Red: Postranice (*Amphipoda*)
Niphargus stygius Schiödte 1848
Niphargus puteanus spoeckeri Schellenberg 1933
Niphargus kochianus wolffi Schellenberg 1933
- Razred: Pajkovci (*Arachnoidea*)
- Red: *Palpigrada*
Koenenia austriaca Hansen
- Red: Pajki (*Araneidea*)
Stalita taenaria Schiödte 1848
- Red: Paščipalci (*Pseudoscorpionidea*)
Neobisium spelaeum Schiödte 1848
Neobisium pusillum Beier 1939
Chtonius cavernarum Ellington
Roncus stussineri Simon
- Red: Suhe južine (*Opilionidea*)
Hadziana postumicola Roewer 1935
Nelima aurantiaca Simon
- Red: Pršice (*Acarina*)
Asca affinis Oudemans
Ixodes vespertilionis C. L. Koch
Labidostoma lyra Willmann 1932
Eugamasus loricatus Wankel
Veigeia kochi Trägårdh
Cyrtolaelaps mucronatus G. & R. Canestrini
Hygrobates longipalpis Hermann
Neumannia limosa C. L. Koch
Arrenurus albator O. F. Müller

Razred: Stonoge (*Myriapoda*)

Podrazred: Strige (*Chilopoda*)

Lithobius stgius Latzel 1880

Podrazred: Kačice (*Diplopoda*)

Acherosoma troglodytes Latzel 1880

Attemisia stygium Latzel 1880

Brachydesmus subterraneus Heller

Gervaisia costata Waga

Razred: Žuželke (*Insecta aut Hexapoda*)

Podrazred: Pražuželke (*Apterygota*)

Hypogastrura purpurascens Lubbock

Hypogastrura sigillata Uzel

Achorutes spelaeus Joseph 1882

Onychiurus armatus Tullberg

Onychiurus boldorii Denis 1938

Onychiurus giganteus Absolon 1901

Onychiurus postumicus Bonet 1931

Onychiurus stachi Denis 1938

Onychiurus stillicidii Schiödte 1848

Anurophorus coecus Joseph (?)

Isotomurus alticolus Carl

Heteromurus nitidus Templeton

Tomocerus niveus Joseph 1882

Oncopodura cavernarum Stach 1934

Sminthurus coecus Joseph 1882 (?)

Plusiocampa erebophila Hamann 1896

Podrazred: Krilate žuželke (*Pterygota*)

Red: Pravokrilci (*Orthoptera*)

Troglophilus cavicola Kollar

Troglophilus neglectus Krauss

Red: Enodnevnice (*Ephemeroidea*)

Baëtis bioculata Linné

Ličinke (*larvae*) spec. ?

Red: Pribrežnice (*Plecoptera*)

Ličinke (*larvae*) spec. ?

Red: Mladoletnice (*Trichoptera*)

Ličinke (*larvae*) spec. ?

Red: Metulji (*Lepidoptera*)

Triphosa dubitata Linné

Scoliopteryx libatrix Linné

Red: Hrošči (*Coleoptera*)

Anophthalmus schmidtii Sturm

Anophthalmus hirtus confusus G. Müller 1935

Laemostenus elongatus Dejan
Laemostenus schreibersi Küster 1846
Bathyscymorphus byssinus Schiödte 1848
Bathysciotes khenvenhülleri L. Miller 1852
Aphaobius milleri F. Schmidt (subsp.)
Leptodirus hohenwarti F. Schmidt 1832
Atheta spelaea Erichson
Quedius mesomelinus Marsham
Machaerites ravasinii G. Müller

Red: Dvokrilci (Diptera)

Neosciara vivida f. tenuicornis Lengersdorf 1932
Chironomus viridulus Linné
Triphleba aptina Schiner & Egger 1854
Chiromia oppidana Scopoli
Nycteribia biarticulata Hermann
Nycteribia schmidli Schiner & Egger
Ličinke (larvae) fam. Culicidae

Deblo: **STRUNARJI (CHORDONIA)**

Poddeblo: Vretenčarji (Vertebrata)

Razred: Ribe (Pisces)

Phoxinus laevis Linné
Leuciscus spec.
Trutta spec.

Razred: Dvoživke (Amphibia)

Proteus anguinus Laurenti

Razred: Sesalci (Mammalia)

Rhinolophus hipposideros Bechstein
Rhinolophus ferrum-equinum Schreber
Miniopterus schreibersi Kuhl

ANNEX 2: THE LIST OF COLEOPTEROLOGICAL FAUNA OF ARTIFICIAL SPACES BY E. PRETNER

CARABIDAE

Geotrechus saulcy subsp. *metallorum* Jeannel

Rudnik hematitnega železa, Privas (Ardèche)

Aphaenops loubensi Jeannel

Aphaenops cabidochei Coiffait

Hydraphaenops vasconicus subsp. *delicatus* Coiffait

Tunel do dvorane Verna na dnu brezna Aven de Pierre-Saint-Martin in
do jame Grotte d Arphidia, Basses Alpes

- Speotrechus* (s. str.) *mayeti* Abeille
Rudnik hematitnega železa, Privas (Ardèche)
- Orotrechus* (s. str.) *carinthiacus* Mandl
Rovi na Obirju v višini 900 do 2000 m
- Orotrechus* (s. str.) *globulipennis* Schaum
Rov pod Plano nad Plužno pri Bovcu
- Orotrechus* (s. str.) *muellerianus* Schatzmayr
Kaverna pri železniški postaji Prosek (Prosecco) na Krasu
- Orotrechus* (s. str.)
Rov na vzhodnem rovu Tisnika blizu Hude luknje
- Orotrechus* (s. str.) *fabianii* Gestro
Podzemeljska kamnoloma Cogolo di Costozza in pri Covolo del Tesoro, Monti Berici
- Duvalius* (s. str.) *carantii* Sella
Podzemeljski prostori samostana Certosa di Pesio, Alpi Marittime
- Duvalius* (s. str.) *exaratus* Schaum
Knapovka jama, Paka severno od Velenja (obronki Karavank)
- Duvalius* (*Euduvalius*) *lucidus* J. Müller
Spilja-rudnik "Minera", Škrip (otok Brač)
- Anophthalmus bernhaueri* Ganglbauer
Obir: rov nad prevalom Šajda, rovi svinčenih rudnikov "Fladung" in "Seealpe", rov v gorskem hrbtu zahodno od Železne Kaple, približno 600 m visoko
Karavanke v Sloveniji: gornji rov na Počivalu nad kmetijo Počivalnik na južnem pobočju kota 1172 Samuha; gornji in doljnji rov v Podlju-belju nad kmetijo Potočnik
- Anophthalmus kaufmanii* subsp. *weingärtneri* (Winkler)
Rudarski vrt, Sv Jakob na Medvednici nad Zagrebom
- Anophthalmus mariae* Schatzmayr
Rov pod Valvazorjevo planinsko kočo na Stolu (Karavanke): rudnik "Pri štolnu" pod planino Trento (Julijske Alpe)
- Anophthalmus egonis* J. Müller
Julijske Alpe: rov nad Rudnim poljem ob stezi za Konjščo planino, rovi "Janez I-III" na Rudnici kota 946 pri Studorju v Bohinju; rov na prevalu med Uskovnico in Ovčarijo; okolica Viševnik planine: rov ob stezi na preval nad Viševnik planino, tretji od zgoraj navzdol, rov pod "Jamo na sedlu"
- Anophthalmus ajdovskanus* subsp. *fodinae* Mandl
Obir: rov pod Rainerjevim domom na Ojstercu, rovi svinčenega rudnika "Seealpe"
- Anophthalmus ajdovskanus* subsp. *pretneri* J. Müller
Rov pod Valvazorjevo planinsko kočo na Stolu in rov "Pri knapih" pod stezo na Begunjščici (Karavanke)

Anophthalmus ajdovskanus aff. subsp. *muelleri* Jeannel

Viševnik planina (Julijske Alpe): rov ob stezi od Viševnik planine na preval, tretji od zgoraj navzdol, veliki rov pri mostu v steni nad jamo Zlatico

Anophthalmus ajdovskanus aff. subsp. *santiacus* G. Müller

Italijanska kaverna iz prve svetovne vojne za Gomiščekovim zavetiščem pod vrhom Krna 2245 m visoko (Julijske Alpe)

Anophthalmus ajdovskanus /Ganglbauer/ (subsp. spec.)

Trenta v Julijskih Alpah: rudnik "Pri štolnu" pod planino Trento in rudnik na Srednici pod Vršacem v Zgornji Trenti

Laemosthenes (A.) *schreibersi* Küster

Julijske Alpe: kaverna na Lajnerju nad Soriško planino, rovi "Janez I-III" na Rudnici kota 946 pri Studorju v Bohinju, rov ob stezi od Viševnik planine na preval, tretji od zgoraj navzdol; italijanska kaverna iz prve svetovne vojne na južnem pobočju Krna 1600 m visoko, rov pod Planjo nad Plužno pri Bovcu; rudnik na Srednici pod Vršacem v Zgornji Trenti, 1800 m visoko in rudnik "Pri štolnu" pod planino Trento
Karavanke: rovi "Pri knapih" na Begunjščici, nad in pod stezo ter tik ob stezi

Menina planina: Selska luknja pri vasi Selo zahodno od Zgornjega Tuhinja

Pohorje: Rov nad kasarno v Bukovju, Dravograd

Kobansko: rov v Sturmovi grabi, Fala

Škofjeloški hribi: rov Arnežov bavhenk na vznožju Šmarjetne gore pri Kranju

BATHYSCIINAE

Bathysciola (s. str.) *linderi* Abeille

Rudnik galenita, Sainte-Marguerite-Lafigère (Cévennes)

Bathysciola *Boldoria* (*ghidinii*) F. Lona

Podzemeljski prostori trdnjave v mestu Brescia

Aphaobius heydeni subsp. *robustus* J. Müller

"Štoln" pri Dobravškem mostu pri Kamni gorici (Škofjeloško hribovje)

Aphaobius milleri subsp. *pretneri* J. Müller

Rov pod Valvazorjevo kočjo na Stolu in 3 rovi "Pri knapih" na Begunjščici (Karavanke)

Aphaobius milleri subsp. *winkleri* Mandl

Rov pri Uletovega planinskega doma na Peci; rova Kolša in Heller na avstrijskem pobočju Pece ("Petzen") v Karavankah

Aphaobius milleri subsp. *brevicornis* Mandl

Obir v avstrijskih Karavankah: rovi v višini 1400 do 2000 m, rov nad prevalom Šajda in rovi svinčenega rudnika "Seealpe"

Aphaobius milleri /F. Schmidt/ (subsp.)

Karavanke: gornji rov na Počivalu nad kmetijo Počivalnik na južnem pobočju kote 1172 Samuha in dolnji rudniški rov nad kmetijo Potočnik v Podljubelju

Menina planina: Selska luknja pri vasi Selo (Zgornji Tuhinj)

Julijske Alpe: rov ob stezi Viševnik planina-preval, t.j. tretji rov od zgoraj navzdol, rov z navpičnim vhodom levo od steze Viševnik planina-preval, veliki rov pri mostu v steni nad jamo Zlatico; rudnik na Srednici pod Vršačem v Zgornji Trenti in rudnik "Pri štolnu" pod planino Trento

Lotharia angulicollis Mandl

Rov nad prevalom Šajda na južnem pobočju Obirja

Oryotus micklitzi Reitter

Julijske Alpe: rov nad Rudnim poljem na Pokljuki; rov ob stezi od Viševnik planine na preval, t.j. tretji od zgoraj navzdol, rov z navpičnim vhodom levo od steze Viševnik planina-preval, veliki rov pri mostu v steni nad jamo Zlatico pod Viševnik planino, rov ob navedeni stezi na levo, kjer ta ne traverzira več pobočje, ampak krene navzgor proti prevalu

Spelaeobates kraussi J. Müller

Spilja-rudnik "Minera", Škrip (otok Brač)

STAPHYLINIDAE

Lathrobium (Glyptomerus) cavicola H. Müller

Menina planina: Selska luknja pri vasi Selo (Zgornji Tuhinj)

Phloeocharis (Scotodytes) winkleri Coiffait

Les Cabesses, rudnik mangana, Rivérenert (Aričge)

CURCULIONIDAE

Trogloorhynchus anophthalmus F. Schmidt

Menina planina: Selska luknja pri vasi Selo (Zgornji Tuhinj)

ANNEX 3: SPECIES NAMED AFTER EGON PRETNER

HROŠČI *Coleoptera*

družina KREŠIČEV, *Carabidae*

Carabus croaticus pretneri Drovenik-Krätschmer, 1977

Adriaphaenops pretneri Scheibel, 1935

(Vjetrenica, Zira jama, BIH - endemit)

Neotrechus suturalis pretneri Scheibel, 1936

(Jama pri Vlaništu, Črna gora - endemit)

Anophthalmus egonis J. Müller, 1923

(Jame na Pokljuki in Pršivcu, Slovenija - endemit)

Anophthalmus ajdovskanus pretneri J. Müller, 1913

(Karavanke, Slovenija - endemit)

Anophthalmus micklitzi pretneri J. Müller, 1913

Anophthalmus milleri pretneri J. Müller, 1913

družina MRHARČKOV, *Catopiidae*, *Bathysciinae*

Aphaobius milleri pretneri J. Müller, 1913

(Stol, Karavanke, Slovenija - endemit)

Pretneria G. Müller, 1931

Pretneria latitarsis (G. Müller, 1931)

(Golobja jama, Trnovski gozd, Slovenija - endemit)

Pretneria saulii (G. Müller, 1941)

(Snežnice na Kaninu, Slovenija - endemit)

Orostygia pretneri G. Müller

(Julijska krajina, Italija)

Speonesiotes pretneri G. Müller, 1934

(pečina Magara, Skadar - endemit)

Leptodirus hohenwarti pretneri (G. Müller, 1926)

(Jama nad Zosten, Čičarija, Istra)

družina RILČKARJEV, *Curculionidae*

Troglorhynchus pretneri Solari 1955

(Velika severna Notranjska planota)

PAJKI, *Aranea*

Troglohyphantes pretneri Deeleman-Reinhold, 1978

(špela Koruns, gora Prokletije, Črna gora - endemit)

Stalita pretneri Deeleman-Reinhold, 1971

(Donja Cerovačka pečina, Lika, Hrvaška - endemit)

STONOGE, *Chilopoda*

Scolopendrellopsis pretneri Juberthie-Jupeau, 1963

DVOJNONOGE, *Diplopoda*

Attemisia pretneri Strasser, 1933

(Križna jama, Lož, Slovenija - endemit)

Acherosoma pretneri Strasser, 1940

(Medvedja pečina, Lokve, Hrvaška - endemit)

Orobainosoma pretneri Strasser

Leptoiulus pretneri minor Strasser, 1940

(Menina planina, Savinjske Alpe, Slovenija - endemit)
Brachydesmus inferus pretneri Verhoeff
Egonopretneria Strasser

RAKI, Crustacea

Spelaeocaris pretneri Matjašič, 1958
Niphargus aquilex pretneri Sket, 1959
(Gornja Cerovačka pečina, Hrvaška - endemit)
Monolistra pretneri pretneri Sket, 1969
(Pečina kod Vrane, Hrvaška - endemit)
Pseudocandona pretneri Danielopol, 1978

POLŽI, Gastropoda

Zospeum pretneri Bole, 1961

VRTINČARJI, Turbellaria

Bubalocerus pretneri Matjašič, 1958

ZGODOVINSKI POMEN EGONA PRETNERJA ZA BIOLOGIJO

Povzetek

Egon Pretner (1896 - 1982) je bil v mednarodnem merilu eden najboljših poznavalcev evropskega krasa in živali v kraških jamah, še posebej hroščev. Največ v tem življenjskem okolju je odkril nad sto novih živalskih vrst in je s tem bistveno prispeval k jamskim katastrofom Slovenije in drugih dežel bivše Jugoslavije, saj je bil zanesljivo jamar, ki je obiskal največ jam v Jugoslaviji. Po svojih zapiskih je obiskal 1492 jam: 649 na Slovenskem, 773 v drugih deželah Jugoslavije, 70 v drugih evropskih državah in sestavil je kataster za večino kraških jam v Sloveniji in republikah bivše Jugoslavije. Za opravljeno delo je prejel mnoga društvena priznanja in odlikovanja. Bil je častni predsednik Slovenskega entomološkega društva ter častni član Jugoslovanskega in Francoskega entomološkega društva. Za znanstveno delo je prejel Prešernovo in Jesenkovo nagrado. Ob 80- letnici je bil odlikovan z redom dela z zlatim vencem. Skromen in delaven je ostal do konca, še poln načrtov, ki pa so ostali naša obveza, da jih dokončamo.

Na področju, kjer je dosegel mednarodni sloves, je bil E. Pretner samouk in dolga leta po statusu zgolj amater. Bil je neutrudljiv terenski delavec, slovenski in celotni jugoslovanski kras, pa tudi kraške predele v sosednji Italiji in Avstriji, je poznal bolje kot kdorkoli. Pridobil si je pomembne zasluge na raznih področjih krasoslovja (evidenca jam, geografija krasa, tehnika jamarstva in jamarskega raziskovanja itn.), predvsem pa se je posvečal raziskovanju

življenja v kraškem podzemlju. Tu je odkril številne nove vrste migetalkarjev, polžev, dvojenog in zlasti hroščev. Kot žužkoslovec je posegel tudi na nekatera druga področja, tako je bil na svetu največji specialist za skupino vodnih hroščev *Hydraena*, vendar pa slovi predvsem kot raziskovalec jamskih hroščev. Razvil je izvirne načine za zbiranje tovrstnega študijskega gradiva. Poleg odkrivanja novih vrst je preverjal tudi že publicirane podatke in ustvaril si je celovito sliko o geografski razširjenosti posameznih vrst. Napisal je nad 70 razprav in člankov v domačih in tujih znanstvenih revijah, za sintezo raziskovalnega dela - monografijo o jamskih hroščih Slovenije - pa mu je zmanjkalo časa. Kot velik altruist je E. Pretner zbrano gradivo pogosto prepuščal v obdelavo raznim specialistom, da so tako prvi opisali mnoge živalske vrste, ki jih je sam odkril. Preko 20 vrst pa se le imenuje po njem, kar kaže na veliko spoštovanje in cenjenost s strani biologov. E. Pretner se je med prvimi zavedel ekološke ogroženosti kraških jam in postal je zgođen bojevnik za varstvo narave tudi na tem področju.