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MONITORING OF SOIL FAUNA DIVERSITY IN INVERSE GORGES OF THE BOHEMIAN SWITZERLAND

2010 REPORT

Institute of Soil Biology, Biology Centre AS CR, v.v.i.
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INTRODUCTION

Bohemian Switzerland National Park offers a wide range of habitats, from dry and warm habitats on the plateaux to the damp biotopes at the bottom of ravines and deep gorges with inverted temperature conditions. Hence, a high diversity of soil fauna could be expected in this area. Except for certain groups of soil macrofauna, however, data on the occurrence and distribution of soil invertebrates in this region are only sporadic; many groups have not yet been studied here at all. Recent studies (Pižl, 1994, 1997, 2002, 2007, Tajovský, 1998, Mourek, 2002) have shown that the Bohemian Switzerland National Park has the highest diversity of certain groups of soil macrofauna within Central Europe and presents a significant refuge for many rare species (several of them occur only here within the Czech Republic). In addition, the area is characterised by the penetration of species with an Atlantic type of distribution. Ravines and gorges with an inverted temperature gradient represent a refuge and/or migration corridor for montane and submontane species.

The project consists of two relatively separate parts:
1) Monitoring of the diversity and quantitative characteristics of soil fauna assemblages and chemical parameters of soil in transects across selected gorges.
2) The inventory of selected important groups of soil fauna in inverse gorges (sampling along the bottom of gorges).

LIST OF SPECIES

The following list includes all taxa of soil animals identified during our research within the project.

Plathelminthes	**Order: Lecithoepitheliata**
	Geocentrophora sphyrocephala, de Man 1876
Nematoda	
	Order: Monhysterida
	Cylindrothristus pannonicus (Andrássy, 1985)
	Eumonhystera longicaudatula (Gerlach et Riemann, 1973)
	Eumonhystera vulgaris (de Man, 1880)
	Order: Chromadorida
	Achromadora tenax (de Man, 1876)
	Prodesmodora cf. *arctica* (Mulvey, 1969)
	Order: Araeolaimida

Bastiania cf. *uncinata* Andrássy, 1991
Ceratoplectus armatus (Bütschli, 1873)
Cylindrolaimus communis de Man, 1880
Domorganus sp.
Ereptonema arcticum Loof, 1971
Chiloplectus cancellatus (Zullini, 1978)
Metateratocephalus crassidens (de Man, 1880)
Metateratocephalus gracilicaudatus Andrássy, 1985
Odontolaimus chlorurus de Man, 1880
Plectus acuminatus Bastian, 1865
Plectus amorphotelus Ebsary, 1985
Plectus communis Bütschli, 1873
Plectus exinocaudatus Truskova, 1976
Plectus geophilus de Man, 1880
Plectus longicaudatus Bütschli, 1873
Plectus parietinus Bastian, 1865
Plectus parvus Bastian, 1865
Plectus rhizophilus de Man, 1880
Rhabdolaimus sp
Tylocephalus laticollis Zell, 1985
Wilsonema otophorum (de Man, 1880)
Wilsonema schuurmansstekhoveni (De Coninck, 1931)
Order: Rhabditida s.l.
Suborder: Teratocephalina
Teratocephalus lirellus Anderson, 1969
Teratocephalus paratenuis Eroshenko, 1973
Teratocephalus terrestris Bütschli, 1873
Teratocephalus cf. *dadayi* Andrássy, 1968
Suborder: Cephalobina
Acrobeloides nanus (de Man, 1880)
Acrobeloides basiloqoodeyi (Brzeski, 1961)
Acrobelophis minimus (Thorne, 1925)
Bunobus loofi (Andrássy, 1968)
Cephalobus persegnis Bastian, 1865
Cephalobus troglophilus Andrássy, 1967
Cervidellus cf. *neftasiensis* Boström, 1986
Deficephalobus cf. *humophilus* (Zell, 1987)
Eucephalobus oxyuroides (de Man, 1876)
Eucephalobus striatus (Bastian, 1865)
Heterocephalobus elongatus (de Man, 1880)
Heterocephalobus cf. *thorneanus* Andrássy, 2005
Panagrolaimus rigidus (Schneider, 1866)
Suborder: Rhabditina
Bunonema reticulatum Richters, 1905
Bunonema richtersi Jägerskiöld, 1905
Bursilla monhystera (Bütschli, 1873)
Protorhabditis filiformis (Bütschli, 1873)
Rhabditis producta (Schneider, 1866)
Rhabditis terricola Dujardin, 1845
Rhabditis cf. *maupasi* Seurat in Maupas, 1919
Suborder: Diplogastrina
Pristionchus sp.
Order: Aphelenchida
Aphelenchoides conimucronatus Bessarabova, 1966
Aphelenchoides editocaputis Shavrov, 1967
Aphelenchoides ferrandini Meyl, 1954 / *parasubtenius* Shavrov, 1967
Aphelenchoides lagenoferrus Baranovskaya, 1963
Aphelenchoides macronucleatus Baranovskaya, 1963
Aphelenchoides saprophilus Franklin, 1957
Aphelenchoides cf. *breviuteralis* Eroshenko, 1968
Aphelenchoides cf. *platycephalus* Eroshenko, 1968

Seinura sp.
Order: Tylenchida
Aglenchus agricola (de Man, 1884)
Cephalenchus hexalineatus (Geraert, 1962)
Cephalenchus leptus Siddiqi, 1963
Coslenchus cf. *andrassyi* Brzeski, 1987
Coslenchus cf. *cancellatus* (Cobb, 1925)/*oligogyrus* Brzeski, 1987
Criconema annuliferum (de Man, 1921)
Deladenus cf. *aridus* Andrássy, 1957
Ditylenchus acutatus Brzeski, 1991
Ditylenchus elegans Zell, 1988
Ditylenchus filenchulus Brzeski, 1991
Ditylenchus longimatricalis (Kazachenko, 1975)
Ditylenchus myceliophagus Goodey, 1958
Ditylenchus parvus Zell, 1988
Ditylenchus A (cf. *ferepolitor* (Kazachenko, 1980)
Ditylenchus B (cf. *terricola* Brzeski, 1991)
Ecphyadophora tenuissima de Man, 1921
Filenchus discrepans (Andrássy, 1954)
Filenchus facultativus (Szczygiel, 1970)
Filenchus infirmus (Andrássy, 1954)
Filenchus longicaudatulus Zell, 1988
Filenchus misellus Andrássy, 1958 s.l.
Filenchus orbus (Andrássy, 1954)
Filenchus quartus (Szczygiel, 1969)
Filenchus spicatus (Brzeski, 1986)
Filenchus vulgaris (Brzeski, 1963)
Filenchus sp. 2
Filenchus sp. 3
Filenchus sp. 4
Helicotylenchus exallus Sher, 1966
Helicotylenchus pseudorobustus (Steiner, 1914)
Helicotylenchus varicaudatus Yuen, 1964
Hemicycliophora sp. (cf. *nucleata* Loof, 1968)
Hoplotylus femina s'Jacob, 1959
Lelenchus leptosoma (de Man, 1880)
Malenchus acarayensis Andrássy, 1968
Malenchus bryophilus (Steiner, 1914)
Malenchus gratiosus Andrássy, 1981
Malenchus nanellus Siddiqi, 1979
Malenchus neosulcus Geraert et Raski, 1986
Miculenchus salvus Andrássy, 1959
Neopsilenshus magnidens (Thorne, 1949) s.l.
Paratylenchus cf. *nanus* Cobb, 1923 group
Paratylenchus straeleni (de Coninck, 1931)
Pseudhalenchus minutus Tarjan, 1958
Rotylenchus goodeyi Loof et Oostenbrink, 1958
Rotylenchus robustus (de Man, 1876) acc. Brzeski (1998)
Tylenchorhynchus dubius (Bütschli, 1873)
Tylenchus davainei Bastian, 1865
Tylenchus elegans de Man, 1876
Xenocriconemella macrodora (Taylor, 1936)
Order: Enoplida
Prismatolaimus dolichurus de Man, 1880
Prismatolaimus intermedius (Bütschli, 1873) / *matoni* Mulk et Coomans,
Prismatolaimus stenolaimoides Loof, 1971
Prismatolaimus sp.
Tripyla filicaudata de Man, 1880
Order: Alaimida
Alaimus arcuatus Thorne, 1939
Alaimus jaulasali Siddiqi et Husain, 1967

Alaimus meyli Andrássy, 1961
Alaimus parvus Thorne, 1939
Alaimus primitivus de Man, 1880
Alaimus cf. *andrassyi* Sabová 1967
Paramphidelus cf. *dolichurus* (de Man, 1876)
Paramphidelus macer Andrássy, 1977
Order: Mononchida
Clarkus papillatus (Bastian, 1965)
Coomansus zschokkei (Menzel, 1913)
Prionchulus punctatus Cobb, 1917
Order: Dorylaimida
Aporcelaimellus alius Andrássy, 2002
Aporcelaimellus krygeri (Ditlevsen, 1928)
Aporcelaimellus medius Andrássy, 2002
Aporcelaimellus obtusicaudatus (Bastian, 1865)
Axonchium propinquum (de Man, 1921)
Crassolabium eroshenkoi (Andrássy, 1991)
Crassolabium cf. *medianum* (Eroshenko, 1976)
Dorylaimellus monticolus Clark, 1963
Enchodelus cf. *E. macrodorus* (de Man, 1880))
Eudorylaimus altherri Tjepkema, Ferrris et Ferris, 1971
Eudorylaimus discolaimioideus (Andrássy, 1958)
Eudorylaimus familiaris Winiszewska-Slipinska, 1987
Eudorylaimus meridionalis Tjepkema, Ferris et Ferris, 1971
Eudorylaimus silvaticus Brzeski, 1960
Eudorylaimus similis (de Man, 1876) acc. Loof (1999)
Eudorylaimus cf *subacutus* (Altherr, 1952) acc. Zell (1986)
Longidorus cylindricaudatus Kozlowska et Seinhorst, 1979
Mesodorylaimus cf. *bastiani* (Bütschli, 1873)
Mesodorylaimus sp.
Metaporcelaimus labiatus (de Man, 1880)
Microdorylaimus sp.
Paractinolaimus macrolaimus (de Man, 1880)
Pungentus silvestris (de Man, 1912)
Tylencholaimus intermedius Peña Santiago et Coomans, 1996
Tylencholaimus mirabilis (Bütschli, 1873)
Order: Triplonchida
Diphtherophora communis de Man, 1880
Trichodorus sparsus Szczygiel, 1968
Tylolaimophorus typicus de Man, 1880
Order: Diphtherophorida
Tylolaimophorus cf. *minor* (Thorne, 1939)

Rotifera

Adineta steineri Bartoš, 1951
Adineta vaga (Davis, 1873)
Ceratotrocha cornigera (Bryce, 1893)
Colurella cf. geophylla Donner, 1951
Encentrum arvicola Wulf, 1936
Habrotrocha bidens (Gosse, 1851)
Habrotrocha constricta (Dujardin, 1841)
Habrotrocha rosa Donner, 1949
Habrotrocha sp. 1
Habrotrocha sp. 2
Habrotrocha sp. 3
Habrotrocha sp. 4
Macrotrachela concinna (Bryce, 1912)
Macrotrachela habita (Bryce, 1894)
Macrotrachela multispinosa Thompson, 1892
Macrotrachela nana (Bryce, 1912)
Macrotrachela cf. *petulans* Milne, 1916

Macrotrachela plicata (Bryce, 1894)
Macrotrachela quadricornifera Milne, 1886
Macrotrachela sp.
Mniobia tentans Donner, 1949
Mniobia variabilis Donner, 1949
Mniobia sp. 1
Mniobia sp. 2
Mniobia sp. 3
Scepanotrocha corniculata Bryce, 1910
Scepanotrocha rubra Bryce, 1910
Scepanotrocha sp.
Wierzejskiella vagneri Koniar, 1955

Polychaeta

Hrabeiella periglandulata Pižl et Chalupský, 1984

Enchytraeidae

Achaeta abulba Graefe, 1989
Achaeta affinis Nielsen et Christensen, 1959
Achaeta cf. *antefolliculata* Dózsa-Farkas et Boros, 2005
Achaeta brevivasa Graefe, 1980
Achaeta camerani (Cognetti, 1899)
Buchholzia appendiculata (Buchholz, 1862)
Cognettia cognetii (Issel, 1905)
Cognettia sphagnetorum (Vejdovský, 1878)
Enchytraeus buchholzi Vejdovský, 1878 s.l.
Enchytraeus norvegicus Abrahamsen, 1969
Enchytronia parva Nielsen et Christensen, 1959
Enchytronia pratensis Chalupský, 1994
Fridericia cf. *benti* Schmelz, 2002
Fridericia connata Bretscher, 1902
Fridericia isseli Rota, 1994
Marionina clavata Nielsen et Christensen, 1961
Mesenchytraeus glandulosus (Levinsen, 1884)
Oconnorella cambrensis (O'Connor, 1963)
Oconnorella tubifera (Nielsen et Christensen, 1959)
Stercutus niveus Michaelsen, 1888

Lumbricidae

Allolobophora eiseni (Levinsen, 1884)
Aporrectodea caliginosa (Savigny, 1826)
Aporrectodea handlirschi (Rosa, 1897)
Aporrectodea rosea (Savigny, 1826)
Dendrobaena attemsi (Michaelsen, 1902)
Dendrobaena illyrica (Cognetti, 1906)
Dendrobaena octaedra (Savigny, 1826)
Dendrobaena vejdovskyi (Černosvitov, 1934)
Dendrodrilus rubidus (Savigny, 1826)
Dendrodrilus subrubicundus Eisen, 1874)
Eiseniella tetraedra (Savigny, 1826)
Kritodrilus auriculatus (Rosa, 1897)
Lumbricus rubellus Hoffmeister, 1843
Octolasion lacteum (Oerley, 1881)
Octolasion tyrtaeum (Savigny, 1826)

Oribatida

Adamaeus onustus (C.L.Koch,1841)
Adelphacarus sellnicki Grandjean,1952
Adoristes ovatus (C.L.Koch,1839)
Achipteria coleoptrata (Linnaeus,1758)
Allosuctobelba grandis (Paoli,1908)

Atropacarus striculus (C.L.Koch,1836)
Autogneta longilamellata (Michael,1885)
Banksinoma lanceolata (Michael,1885)
Belba compta (Kulczynski,1902)
Belba pseudocorynopus Markell et Meyer,1960
Berniniella bicarinata (Paoli,1908)
Berniniella sigma (Strenzke,1951)
Brachychochthonius honestus Moritz,1976
Brachychthonius berlesei Willmann,1928
Brachychthonius impressus Moritz,1976
Caleremaeus monilipes (Michael,1882)
Camisia biurus (C.L.Koch,1839)
Camisia spinifer (C.L.Koch,1836)
Carabodes areolatus Berlese,1916
Carabodes coriaceus C.L.och,1835
Carabodes femoralis (Nicolet,1855)
Carabodes labyrinthicus (Michael,1879)
Carabodes marginatus (Michael,1884)
Carabodes ornatus Štorkán,1925
Carabodes rugosior Berlese,1916
Carabodes subarcticus Trägardh,1902
Carabodes tenuis Forsslund,1953
Cepheus cepheiformis (Nicolet,1855)
Ceratoppia quadridentata (Haller,1882)
Ceratoppia sexpilosa Willmann,1938
Ceratozetella thienemanni (Willmann,1943)
Ceratozetes gracilis (Michael,1884)
Ceratozetes mediocris Berlese,1908
Ceratozetes minutissimus Willmann,1952
Conchogneta dalecarlica (Forsslund,1947)
Ctenobelba pectinigera (Berlese,1908)
Cultroribula bicultrata (Berlese,1905)
Cymberemaeus cymba (Nicolet,1855)
Damaeobelba minutissima (Sellnick,1920)
Dissorhina ornata (Oudemans,1900)
Dissorhina signata (Schwalbe,1989)
Edwardzetes edwardsii (Nicolet,1855)
Eniochthonius minutissimus (Berlese,1904)
Eobrachychthonius borealis Forsslund,1942
Eueremaeus silvestris (Forsslund,1956)
Eulohmannia ribagai Berlese,1910
Eupelops hirtus (Berlese,1916)
Eupelops occultus (C.L.Koch,1836)
Eupelops plicatus (C.L.Koch,1836)
Eupelops torulosus (C.L.Koch,1839)
Euphthiracarus cribrarius (Berlese,1904)
Euphthiracarus monodactylus (Willmann,1919)
Euzetes globulus (Nicolet,1855)
Fossonothrus laciniatus (Berlese,1905)
Furcoribula furcillata (Nordenskiold,1901)
Fuscozetes setosus (C.L.Koch,1839)
Galumna elimata (C.L.Koch,1841)
Galumna lanceata Oudemans,1900
Gehypochthonius rhadamanthus Jacot,1936
Globozetes longipilus Sellnick,1928
Gustavia microcephala (Nicolet,1855)
Hemileius initialis (Berlese,1908)
Heminothrus longisetosus Willmann,1925
Heminothrus targionii (Berlese,1885)
Hermannia gibba (C.L.Koch,1839)
Hypodamaeus gracilipes (Kulczynski,1902)

Hypochthonius rufulus C.L.Koch,1840
Chamobates (Xiphobates) voigtsi (Oudemans,1902)
Chamobates birulai (Kulczynski,1902)
Chamobates borealis (Trägardh,1902)
Chamobates cuspidatus (Michael,1884)
Lauroppia falcata (Paoli,1908)
Lauroppia marginedentata (Strenzke,1951)
Lauroppia neerlandica (Oudemans,1900)
Liacarus coracinus (C.L.Koch,1841)
Licneremaeus licnophorus (Michael,1882)
Licnodamaeus pulcherrimus (Paoli,1908)
Liebstadia longior (Berlese,1908)
Liebstadia pannonica (Willmann,1951)
Liebstadia similis (Michael,1888)
Liebstadia willmanni Miko et Weigmann,1996
Liochthonius alpestris (Forsslund,1958)
Liochthonius brevis (Michael,1888)
Liochthonius evansi (Forsslund,1958)
Liochthonius horridus (Sellnick,1928)
Liochthonius hystricinus (Forsslund,1942)
Liochthonius laetepictus (Berlse,1910)
Liochthonius perfusorius Moritz,1976
Liochthonius sellnicki (Thor,1930)
Malaconothrus gracilis Hammen, 1952
Medioppia loksai (Schalk,1966)
Medioppia obsoleta (Paoli,1908)
Medioppia subpectinata (Oudemans,1900)
Melanozetes meridianus Sellnick,1928
Melanozetes mollicomus (C.L.Koch,1839)
Metabelba pulverosa Strenzke,1949
Metabelba sp.
Micreremus brevipes (Michael,1888)
Microppia minus (Paoli,1908)
Microtritia minima (Berlese,1904)
Minunthozetes semirufus (C.L.Koch,1841)
Mixochthonius pilososetosus (Forsslund,1942)
Nanhermannia coronata Berlese,1913
Nanhermannia elegantula Berlese,1913
Nanhermannia nana (Nicolet,1855)
Neobrachychthonius marginatus (Forsslund,1942)
Neoliochthonius piluliferus (Forsslund,1942)
Neoribates aurantiacus (Oudemans,1914)
Nothrus anauniensis Canestrini et Fanzago,1876
Nothrus silvestris Nicolet,1855
Odontocepheus elongatus (Michael,1879)
Ophidiotrichus connexus (Berlese,1904)
Oppiella nova (Oudemans,1902)
Oribatella calcarata (C.L.Koch,1835)
Oribatella quadricornuta (Michael,1880)
Oribatula tibialis (Nicolet,1855)
Palaeacarus hystricinus Tragardh,1932
Pantelozetes paolii (Oudemans,1913)
Parachipteria willmanni Hammen,1952
Parhypochthonius aphidinus Berlese,1904
Phauloppia rauschenensis (Sellnick,1928)
Phthiracarus sp.1
Pilogalumna tenuiclava (Berlese,1908)
Platyliodes scaliger (C.L.Koch,1839)
Platynothrus peltifer (C.L.Koch,1839)
Porobelba spinosa (Sellnick,1920)
Protoribotritia oligotricha Markell,1963

Punctoribates punctum (C.L.Koch,1839)
Quadroppia monstruosa Hammer,1979
Quadroppia quadricarinata (Michael,1885)
Rhysotritia ardua (C.L.Koch,1841)
Rhysotritia duplicata (Grandjean,1953)
Sellnickochthonius immaculatus (Forsslund,1942)
Sellnickochthonius jacoti (Evans,1952)
Sellnickochthonius rostratus (Jacot,1936)
Sellnickochthonius suecicus (Forsslund,1942)
Sellnickochthonius zelawaiensis (Sellnick,1928)
Scheloribates laevigatus (C.L.Koch,1835)
Scheloribates latipes (C.L.Koch,1844)
Spatiodamaeus verticilipes (Nicolet,1855)
Steganacarus applicatus (Sellnick,1920)
Suctobelba aliena Moritz,1970
Suctobelba regia Moritz,1970
Suctobelba reticulata Moritz,1970
Suctobelba trigona (Michael,1888)
Suctobelbella acutidens (Forsslund,1941)
Suctobelbella alloenasuta Moritz,1971
Suctobelbella arcana Moritz,1970
Suctobelbella falcata (Forsslund,1941)
Suctobelbella longirostris (Forsslund,1941)
Suctobelbella nasalis (Forsslund,1941)
Suctobelbella palustris (Forsslund,1953)
Suctobelbella sarekensis (Forsslund,1941)
Suctobelbella similis (Forsslund,1941)
Suctobelbella subcornigera (Forsslund,1941)
Suctobelbella subtrigona (Oudemans,1900)
Tectocepheus knullei Vaněk,1960
Tectocepheus minor Berlese, 1903
Tectocepheus velatus (Michael,1880)
Trhypochthonius cladonicola (Willmann,1920)
Trichoribates trimaculatus (C.L.Koch,1835)
Trimalaconothrus glaber (Michael,1888)
Verachthonius laticeps (Strenzke,1951)
Xenillus tegeocranus (Hermann,1804)
Zygoribatula exilis (Nicolet,1855)

Diplopoda

Craspedosoma rawlinsi Leach, 1814
Enantiulus nanus (Latzel, 1884)
Glomeris hexasticha Brandt, 1833
Haasea flavescens (Latzel, 1884)
Haasea germanica (Verhoeff, 1901)
Julus scandinavius Latzel, 1884
Leptoiulus trilobatus (Verhoeff, 1894)
Leptoiulus proximus (Němec, 1896)
Megaphyllum projectum (Verhoeff, 1894)
Mycogona germanica (Verhoeff, 1892)
Nemasoma varicorne C.L.Koch, 1847
Ochogona caroli (Rothenbuehler, 1900)
Polydesmus complanatus (Linnaeus, 1761)
Polydesmus denticulatus C.L.Koch, 1847
Polyxenus lagurus (Linnaeus, 1758)
Polyzonium germanicum Brandt, 1831
Proteroiulus fuscus (Am Stein, 1857)
Unciger foetidus (C.L.Koch, 1838)
Unciger transsilvanicus (Verhoeff, 1899)

Chilopoda

Cryptops parisi Brölemann, 1920
Geophilus flavus (DeGeer, 1778)
Geophilus insculptus Attems, 1895
Geophilus oligopus (Attems, 1895)
Geophilus truncorum Bergsoe et Meinert, 1866
Lithobius austriacus Verhoeff, 1837
Lithobius curtipes C.L.Koch, 1847
Lithobius cyrtopus Latzel, 1880
Lithobius erythrocephalus C.L.Koch, 1847
Lithobius forficatus Linnaeus, 1758
Lithobius micropodus (Matic, 1980)
Lithobius mutabilis L.Koch, 1862
Lithobius muticus C.L.Koch, 1847
Lithobius nodulipes Latzel, 1880
Schendyla montana (Attems, 1895)
Schendyla nemorensis (C.L.Koch, 1836)
Strigamia acuminata (Leach, 1814)
Strigamia transsilvanica (Verhoeff, 1928)

Oniscidea

Hyloniscus riparius (C.L.Koch, 1838)
Ligidium hypnorum (Cuvier, 1792)
Porcellium collicola (Verhoeff, 1907)
Porcellium conspersum (C.Koch, 1841)
Protracheoniscus politus (C.Koch, 1841)
Trachelipus ratzeburgii (Brandt, 1833)
Trichoniscus pusillus Brandt, 1833

In comparison with the data presented in the 2009 Report, several dozens of taxa have been added to the list on the basis of both newly collected and/or identified specimens, particularly from the groups of Nematoda, Oribatida, Chilopoda, and Rotifera.

A total of 161 species of Nematoda were listed in the 2009 Report. The identity of some species was determined later, after more specimens had been collected (e.g. *Acrobeloides basilogoodeyi*, *Coomansus zschokkei*, *Dorylaimellus monticolus*). These and newly collected species are included in the check-list above. The added species are mostly rare, possibly with the exception of *Tylolaimophorus* cf. *minor*, which probably occurs in some microhabitats, but its body characteristics and those of *Tylolaimophorus typicus* overlap. Males of *T. typicus* were so far found only in the soil on the bottoms of the gorges and were very rare. Thus a precise discrimination of *T. minor* and *T. typicus* populations has not been possible. Some nematodes could not be determined to species by means of currently available literature including the most recent books on European nematodes by Andrássy (2005, 2007, and 2009). The identification of some nematodes to species level is also complicated by insufficient material, e.g. *Hemicycliophora* sp. (cf. *nucleata* Loof, 1968) was represented by only one adult female and several juveniles. In total, about 180 nematode species have been found till now. However, the identification of Alaimida and Aphelenchida has not been completed yet.

Six additional enchytraeid species were recorded since the 2009 Report, although not all taxonomic uncertainties could be resolved. The bottom of the Hauschengrund gorge proved to be richer in species than the previous samplings had indicated. The Brtnický potok floodplain had the highest enchytraeid species richness, its assemblage included species with preference for soils of lower acidity. The small annelid species *Hrabeiella periglandulata* ("Polychaeta") has now also been recorded from the bottom of the Hauschengrund, although in much smaller numbers than at the bottom of the Brtnický potok gorge. These sites represent the fourth and fifth known locality of this rarely reported species within the Czech Republic. The gorge bottoms were richer in species than the slopes and gorge edges or plateaus, the latter two hosting only a few species tolerant to very acidic soil. However, these acid tolerant species were able to build up extremely high densities under favourble moisture conditions, exceeding 160 thousand individuals per square meter at the Kachní potok gorge in June 2010.

In regard to earthworms, the record of the rare hygrophilous endogeic species *Aporrectodea handlirschi* seems to be most important. In addition, the records of *Dendrobaena attemsi* and *Kritodrilus auriculatus* should be mentioned, both species being known from a few Central European localities only.

The following oribatid mites belong to important ones from the nature conservation point of view: *Sellnickochthonius honestus* (new for the fauna of the Czech Republic), *Chamobates birulai* (new for the fauna of Bohemia), *Ceratozetella thienemanni* (a rare hygrophilous and tyrphophilous species), *Carabodes tenuis* - a rare species distributed in Northern and Central Europe, *Gehypochthonius rhadamanthus* - a very rare, ancient species belonging to one of only few oribatids living in deep soil layers, *Licnodamaeus pulcherrimus* - a distinctly xerophilous species living in dry forests, steppes and heather moors, *Liochthonius perfusorius* - a distinctly hygrophilous species distributed in Central and Northern Europe, *Microtritia loksai* - a rare species distributed in Central and Eastern Europe, *Microtritia minima* - a rare species distributed in the whole Holarctic, *Protoribotritia oligotricha* - a rare species found in Northern, Central and Eastern Europe, the third record from the Czech Republic, and *Quadroppia monstruosa* - a species described from Northern Pakistan and reported also from Central and Southern Europe.

In regard to the millipede, centipede and terrestrial isopod assemblages in the studied inverse gorges, five new species (*Enantiulus nanus*, *Haasea germanica*, *Mastigona bosniensis*, *Polyxenus lagurus*, and *Polydesmus complanatus*), hitherto unknown from the area, were recorded since the 2009 Report. This is rather remarkable, as these groups had not only been studied in the area in the preceding years of the project (2008-2009) but also in

2006 and in the 1990s (Tajovský 1998). In regard to the temperature inversion in the gorges the repeated records of the millipede *Unciger transsilvanicus* are remarkable. This species is considered as South-East European faunal element closely related to warmer and drier (xerothermic) habitats.

The same methods (soil sampling and pitfall trapping) used for the monitoring of millipedes and terrestrial isopods yielded also numerous centipedes. Before our project 23 species were reported from a wide spectrum of diverse biotopes within the study area (Tajovský, 1998). Within the recent monitoring project 20 species have been recorded, five of them for the first time for the whole area of the Bohemian Switzerland (*Geophilus oligopus*, *Geophilus truncorum*, *Lithobius curtipes*, *Lithobius muticus*, and *Strigamia transsilvanica*). Some of the collected material (in particular from the pitfall traps) is still being processed and the corresponding data will be included in the final report.

The list of six species of terrestrial isopods hitherto known from diverse gorges and valleys of the Bohemian Switzerland National Park (Tajovský 1998) was up-dated by the addition of two species recorded within this monitoring project: *Hyloniscus riparius* and *Porcellium collicola*. All seven species recorded in the gorges studied within the present project are common European or Central European isopods. The species *Hyloniscus riparius*, *Trichoniscus pusillus* and *Ligidium hypnorum* are more closely associated with humid habitats.

MONITORING OF THE DIVERSITY AND QUANTITATIVE CHARACTERISTICS OF SOIL FAUNA ASSEMBLAGES AND CHEMICAL PARAMETERS OF SOIL IN TRANSECTS ACROSS SELECTED GORGES

LOCALITIES AND METHODS

The monitoring of soil fauna assemblages continued with samplings in spring and autumn 2010 in three inverse gorges: ***Brtnický potok*** **(BP)** - a broad eutrophic gorge with maple and alder stands on the bottom, ***Hauschengrund*** **(HG)** - a shallow oligotrophic gorge, and ***Kachní potok*** **(KP)** - a deep oligotrophic gorge. Five sites were sampled at each locality, representing points along a transect leading across the gorge. The first sites (KP1, BP1, HG1) represented the highest parts on or close to the upper sandstone summit plateaux on the right side of the gorges (looking into the gorge from its mouth). The second sites (KP2, BP2, HG2) were situated in the middle part of the right slopes, the third ones (KP3, BP3, HG3) on the bottom of the gorges, the fourth ones (KP4, BP4, HG4) in the middle part of the left slopes and the fifth sites (KP5, BP5, HG5) were located on or close to the left upper plateaux. The GPS co-ordinates and altitudes of the individual sites are given in Tab. 1.

Table 1. GPS co-ordinates and altitudes of individual sites.

Locality	**Site**	**GPS co-ordinates**		**Altitude**
Brtnický potok	BP 1	N50 56.034	E14 24.390	448 m
	BP 2	N50 56.042	E14 24.366	434 m
	BP 3	N50 56.022	E14 24.314	313 m
	BP 4	N50 56.066	E14 24.242	358 m
	BP 5	N50 56.076	E14 24.172	397 m
Hauschengrund	HG 1	N50 52.585	E14 22.236	339 m
	HG 2	N50 52.609	E14 22.379	324 m
	HG 3	N50 52.596	E14 22.348	317 m
	HG 4	N50 52.600	E14 22.314	338 m
	HG 5	N50 52.567	E14 22.266	375 m
Kachní potok	KP 1	N50 51.784	E14 18.437	256 m
	KP 2	N50 51.731	E14 18.487	247 m
	KP 3	N50 51.726	E14 18.547	239 m
	KP 4	N50 51.667	E14 18.598	291 m
	KP 5	N50 51.704	E14 18.605	319 m

For the study of soil nematodes, rotifers, tardigrades and other soil microfauna, five soil samples were taken at each site using a cylindrical soil corer of a cross-sectional area of 10 cm^2 down to a depth of 10 cm (or less, depending on the depth of soil). The nematodes were isolated from volumes of mixed soil from these soil cores amounting to 15 ml, which represented 3.5 to 10 grams of the substrate, depending on the soil properties. Then the nematode counts were recalculated to correspond to the area covered by the corer and in the tables they are given as the abundance (number of individuals) per square centimetre. Soil microfauna was extracted from soil using modified Baermann funnels (24 hours exposition at 25 ºC). Animals were killed and conserved by 3.5% solution of formaldehyde, transferred by ethanol-glycerol procedure into glycerol and studied in open glycerol slides. Individuals were determined to species or species groups.

Enchytraeids were sampled in June 2010 only (J. Schlaghamerský was doing research in the USA in autumn) using a cylindrical steel corer of 17 cm^2 working area. At each of the five sites along the transect across the gorge two soil samples were taken to a depth of 12-15 cm. All soil cores were subdivided into 3 cm layers in the field and the corresponding soil horizon was recorded. These subsamples were subjected to wet funnel extraction according to Graefe (48 hours without heating, first retrieval of extracted animals after 24 hours). The extracted enchytraeids were kept alive in water-filled Petri dishes at 8 °C and subsequently identified to species (whenever possible) using a high-power light microscope (employing Nomarski interference contrast). Due to extremely high densities in June 2010, in particular in the Kachní potok gorge, enchytraeids extracted from one half of the samples had to be fixed in 70% ethanol for later processing. A prolonged storage of soil samples prior to extraction was considered risky due to unknown effects on reproduction and mortality within the samples; a prolonged storage of live enchytraeids after extraction led to high mortality and decomposition of the worms, thus preventing reliable species identification. Therefore, and as the species spectrum had already been well established by the previously identified samples from all localities (gorges) and sites, this step was taken as the least detrimental to the aims of the project. In 2010, measurements of dry body mass of the frequent species were conducted for bunches of enchytraeid specimens separately for species and different size classes. These measurements together with density data should allow a future calculation of enchytraeid biomass at the study sites and its changes over time.

For the study of oribatid mites and collembolans, five soil samples (each 10 cm^2, 10 cm in depth) were taken at each site. Soil samples were transported to the laboratory, where the animals were extracted using modified Berlese – Tullgren funnels at a temperature of 35 ^oC

for five days. Oribatids were then cleared up in temporary microscopic slides with 80% lactic acid, determined at the species level and transferred to glycerol. The extracted collembolans are under analysis at present.

Three soil samples (each of an area of 25 x 25 cm, i.e. 1/16 m^2, with a depth of ca. 5 cm) were taken at each site for the study of soil macrofauna. After the transportation of samples into the laboratory, the animals were heat-extracted using a modified Kempson extraction apparatus. Earthworms, millipedes, centipedes, and terrestrial isopods were identified at the species level.

Due to the time-consuming extraction procedures and identification, the material of the majority of soil fauna groups collected in autumn 2010 has not yet been completely analysed.

RESULTS

Soil parameters

The analyses of basic chemical parameters of soil showed that the soils in all plots under study were acidic (Table 2). The pH of soil was highest at the bottom of the gorges and decreased towards the middle part of the slopes and further to the upper plateaux. A similar stratification was found for the amount of soil organic matter (Cox). This was usually markedly lower at the bottom than on the slopes. However, the variations in soil nutrients did not follow that pattern.

Table 2. Selected soil characteristics (0-10 cm) in individual plots of the transects across gorges

	pH/$CaCl_2$	Pv	K	Mg	Ca	Na	Cox
		mg.kg^{-1}					%
Kachní potok							
KP1	2.79	5	41	16	197	< 10	10.6
KP2	2.8	5	50	13	87	< 10	14.1
KP3	3.9	19	49	29	174	< 10	3.87
KP4	2.82	6	56	15	65	< 10	10.3
KP5	2.8	5	107	27	163	11	20.5
Brtnický potok							
BP1	2.69	5	50	7	81	< 10	20.3
BP2	2.83	5	31	5	51	< 10	7.94
BP3	3.83	9	57	22	165	< 10	4.7
BP4	2.88	6	150	19	50	< 10	21.1
BP5	2.76	6	77	15	78	< 10	21.7
Hauschengrund							
HG1	2.8	5	22	5	58	< 10	9
HG2	2.73	5	29	10	110	< 10	10.8
HG3	3.46	5	83	101	212	< 10	9.89
HG4	3.02	5	15	5	50	< 10	5.61
HG5	2.72	5	35	11	108	< 10	15.3

Nematoda

As already reported in the 2009 Report, the greatest richness of nematode faunas was found on the bottoms of the gorges (Tables 3, 4, 5, 6, 7, and 8). Fungivores and root-fungal feeders reached greatest abundance on the slopes in October 2009, which was consistent with the trophic structure of nematode assemblages observed earlier. However, in June 2010 the abundance of fungivores and root-fungal feeders declined (Table 9), while the dominance of bacterivores increased and the dominance of fungivores decreased (Table 10). The dominance of the bacterivorous genera *Plectus* and *Acrobeloides* increased while the dominance of the fungivorous *Aphelechoides* and the root-fungal feeding *Filenchus* showed a decrease (Table 11). Whether those changes in trophic structure of nematode communities were statistically significant is yet to be tested.

The composition of nematode assemblages was analysed be means of cluster analysis. Most samples taken at the bottoms of the gorges Hauschengrund (GH) and Brtnický potok (BP) in October 2009 were assembled in the middle cluster whereas samples from the bottom of Kachní potok (KP) occurred in the upper cluster (Fig. 1). Majority of samples taken at the gorge bottoms in June 2010 formed the lower cluster in Fig. 2. As far as the entire nematode fauna of individual zones (transect sites) of the gorges was concerned, the bottoms of Hauschengrund (GH) and Kachní potok (KP) in October 2009 were apart from Brtnický potok (BP) (Fig. 3). In June 2010 the nematode faunas of the bottoms of HG and BP were much more similar to each other than to any other zone (Fig. 4).

As follows from the partial analyses that have been conducted until now, the composition of nematode communities in individual zones of the gorges was relatively variable and mostly only the bottom of the Brtnický potok gorge was characterised by a distinct nematode fauna present in the majority of samples taken on all sampling dates. Fig. 5 gives an overall picture of the situation over the period from June 2008 to October 2009. We can see that the nematode fauna of the bottom parts of the gorges was different from the upper zones of the gorges and that HG and KP were more similar to each other than to BP. The middle cluster comprises the majority of series of samples taken from the middle zones of the gorges and the right cluster comprises the majority of series of samples taken from the upper zones of the gorges. It is evident that those zones are not clearly demarcated. Nevertheless, the zones can be to a certain extent characterised by the assemblages of nematode genera and species as suggested in the 2009 Report although individual gorges can differ in dominant nematodes.

Preliminary conclusions: The greatest richness of nematode species and genera is at the

bottoms of the gorges, less nematode species and genera occur on the slopes. The slopes of the gorges are characterised by high population densities of small (body length mostly shorter than 0.5 mm) nematode species feeding on fungi. However, those species can show seasonal fluctuations. At the bottom of the gorges the trophic structure of nematode communities is more balanced and predacious species are present that are mostly absent on the slopes. The bottoms of the gorges have nematode faunas to a great extent different from the fauna on the slopes. These differences are more evident in the wide bottom of the Brtnický potok gorge than at the bottoms of the narrower gorges Kachní potok and Hauschengrund. The nematode fauna above the gorge bottoms is a mosaic of local "micro-communities (assemblages)". Nevertheless, some species (genera) tend to occur in greater population densities in either middle or top parts of the gorges and a certain zonation of the nematode fauna from the bottom to the upper parts of the gorges can be detected.

Table 3. Total mean abundance of nematodes and parameters of its variability in individual zones of the inverse gorge Hauschengrund (HG), numbers of genera and species, abundance of trophic groups, orders and suborders of soil nematodes. Autumn 2009.

Boh. Switzerland NP, October 2009	**HG1**	**HG2**	**HG3**	**HG4**	**HG5**
NEMATODA					
Total mean abundance ind.cm^{-2}	273.47	490.74	135.33	139.66	707.01
Standard deviation (n = 5)	257.32	340.78	82.33	29.79	369.79
Coefficient of variation %	94.09	69.44	60.84	21.33	52.30
Minimum abundance	60.74	255.40	58.62	110.34	264.62
Maximum abundance	704.62	1032.14	275.00	188.10	1099.60
Numbers of genera	17	16	31	22	17
Numbers of species (estimate)	25	21	47	32	26
Trophic groups ind.cm^{-2}					
Bacterivores	50.17	20.16	21.52	25.49	119.00
Fungivores	134.88	43.27	10.81	34.52	214.46
Root-fungal feeders	63.84	403.24	34.48	64.81	330.36
Plant parasites	4.60	4.15	54.57	3.73	11.76
Omnivores	18.28	19.92	12.56	11.11	29.95
Predators	0.00	0.00	1.39	0.00	1.48
Insect parasites	1.69	0.00	0.00	0.00	0.00
Orders and suborders ind.cm^{-2}					
Monhysterida	0.00	0.00	1.88	0.37	0.00
Chromadorida	0.00	0.00	0.00	0.00	0.00
Araeolaimida	22.69	5.77	4.17	9.95	57.46
Teratocephalina	0.84	1.64	1.12	1.86	0.76
Cephalobina	18.09	6.36	5.22	11.05	51.76
Rhabditina	2.04	0.00	1.58	0.75	0.00
Diplogastrina	0.00	0.00	0.00	0.00	0.00
Ahelenchida	96.98	8.11	5.92	25.82	212.71
Tylenchida	80.40	407.73	90.11	69.96	344.25
Enoplida	1.99	6.38	0.77	0.77	8.68
Alaimida	6.21	0.00	7.06	0.74	0.35
Mononchida	0.00	0.00	1.13	0.00	0.00
Dorylaimida	18.28	19.92	12.56	11.11	29.95
Diphtherophorida (Triplonchida)	25.94	34.86	3.82	7.29	1.10
unclassifiable	0.00	0.00	0.00	0.00	0.00

Table 4. Total mean abundance of nematodes and parameters of its variability in individual zones of the inverse gorge Brtnický potok (BP), numbers of genera and species, abundance of trophic groups, orders and suborders of soil nematodes. Autumn 2009.

Boh. Switzerland NP, October 2009	**BP1**	**BP2**	**BP3**	**BP4**	**BP5**
NEMATODA					
Total mean abundance ind.cm^{-2}	1359.20	342.10	185.39	141.63	418.23
Standard deviation (n = 5)	414.41	188.10	60.97	87.69	414.29
Coefficient of variation %	30.49	54.98	32.89	61.91	99.06
Minimum abundance	905.33	142.95	107.91	60.67	113.21
Maximum abundance	1853.11	589.37	274.68	280.80	1103.95
Numbers of genera	14	18	31	20	14
Numbers of species (estimate)	22	29	46	32	21
Trophic groups ind.cm^{-2}					
Bacterivores	467.68	83.34	37.76	55.17	42.49
Fungivores	626.87	108.97	5.61	20.28	113.85
Root-fungal feeders	217.26	122.89	28.96	57.62	229.31
Plant parasites	3.71	3.20	77.65	2.22	0.00
Omnivores	43.68	23.39	28.55	6.35	32.58
Predators	0.00	0.00	6.86	0.00	0.00
Insect parasites	0.00	0.31	0.00	0.00	0.00
	1359.20	342.10	185.39	141.63	418.23
Orders and suborders ind.cm^{-2}					
Monhysterida	0.00	0.17	1.03	0.00	0.00
Chromadorida	0.00	0.00	0.35	0.00	0.00
Araeolaimida	276.22	52.99	11.58	13.54	15.46
Teratocephalina	2.54	2.61	1.44	2.16	1.26
Cephalobina	136.69	11.16	16.10	6.26	24.10
Rhabditina	10.87	0.48	2.09	6.27	0.33
Diplogastrina	0.00	0.00	0.00	18.11	0.00
Ahelenchida	358.10	68.50	3.49	17.71	42.59
Tylenchida	225.02	129.07	93.94	61.50	230.92
Enoplida	41.37	9.02	1.24	1.43	1.34
Alaimida	0.00	7.21	3.93	7.41	0.00
Mononchida	0.00	0.00	6.86	0.00	0.00
Dorylaimida	43.68	23.39	28.55	6.35	32.58
Diphtherophorida (Triplonchida)	264.72	37.50	14.80	0.90	69.65
unclassifiable	0.00	0.00	0.00	0.00	0.00

Table 5. Total mean abundance of nematodes and parameters of its variability in individual zones of the inverse gorge Kachní potok (KP), numbers of genera and species, abundance of trophic groups, orders and suborders of soil nematodes. Autumn 2009.

NP České Švýcarsko, October 2009	**KP1**	**KP2**	**KP3**	**KP4**	**KP5**
NEMATODA					
Total mean abundance ind.cm^{-2}	197.87	131.21	34.60	360.47	513.06
Standard deviation (n = 5)	128.01	89.77	5.84	303.77	588.67
Coefficient of variation %	64.69	68.42	16.88	84.27	114.74
Minimum abundance	82.67	43.06	26.83	124.97	84.40
Maximum abundance	397.46	276.15	41.61	814.38	1551.12
Numbers of genera	15	15	19	17	15
Numbers of species (estimate)	23	22	26	23	22
Trophic groups ind.cm^{-2}					
Bacterivores	30.26	12.53	8.34	90.11	72.04
Fungivores	36.57	39.96	5.21	56.51	63.79
Root-fungal feeders	118.38	72.35	11.51	200.43	363.92
Plant parasites	2.97	0.69	3.65	5.16	0.00
Omnivores	9.68	5.68	2.91	8.26	13.07
Predators	0.00	0.00	3.00	0.00	0.24
Insect parasites	0.00	0.00	0.00	0.00	0.00
Orders and suborders ind.cm^{-2}					
Monhysterida	0.00	0.00	0.29	0.00	0.00
Chromadorida	0.00	0.00	0.00	0.00	0.00
Araeolaimida	7.76	8.29	3.20	11.84	24.98
Teratocephalina	0.00	0.00	0.28	1.78	0.33
Cephalobina	19.75	3.22	4.01	74.76	45.82
Rhabditina	0.00	0.00	0.00	0.00	0.61
Diplogastrina	0.00	0.00	0.00	0.00	0.00
Ahelenchida	31.38	35.54	2.80	52.28	61.83
Tylenchida	123.96	77.03	15.16	205.95	366.11
Enoplida	2.53	0.35	0.56	0.63	0.00
Alaimida	0.22	0.67	0.00	1.09	0.31
Mononchida	0.00	0.00	3.00	0.00	0.00
Dorylaimida	9.68	5.68	5.31	8.26	13.07
Diphtherophorida (Triplonchida)	2.58	0.42	0.00	3.87	0.00
unclassifiable	0.00	0.00	0.00	0.00	0.00

Table 6. Total mean abundance of nematodes and parameters of its variability in individual zones of the inverse gorge Hauschengrund (HG), numbers of genera and species, abundance of trophic groups, orders and suborders of soil nematodes. Spring 2010.

Boh. Switzerland NP, June 2010	**HG1**	**HG2**	**HG3**	**HG4**	**HG5**
NEMATODA					
Total mean abundance ind.cm^{-2}	273.00	163.03	162.39	307.90	189.20
Standard deviation (n = 5)	163.13	58.28	37.75	293.48	98.69
Coefficient of variation %	59.75	35.75	23.25	95.32	52.16
Minimum abundance	120.63	88.81	118.97	124.63	106.45
Maximum abundance	519.76	245.49	204.58	827.97	356.63
Numbers of genera	18	18	36	18	17
Numbers of species (estimate)	25	32	50	24	25
Trophic groups ind.cm^{-2}					
Bacterivores	108.15	89.97	61.99	19.83	61.30
Fungivores	35.42	10.76	14.77	37.55	48.53
Root-fungal feeders	103.17	54.70	37.31	224.93	48.21
Plant parasites	20.17	1.43	20.23	2.08	5.84
Omnivores	5.38	6.16	21.75	23.51	24.53
Predators	0.71	0.00	5.66	0.00	0.00
Insect parasites	0.00	0.00	0.68	0.00	0.79
Orders and suborders ind.cm^{-2}					
Monhysterida	0.52	0.76	2.14	0.41	0.31
Chromadorida	0.00	0.00	0.38	0.00	0.00
Araeolaimida	53.19	18.51	31.36	12.58	31.27
Teratocephalina	1.84	2.45	0.72	0.00	0.31
Cephalobina	48.18	68.25	13.40	5.33	26.31
Rhabditina	0.73	0.00	6.21	0.24	0.79
Diplogastrina	0.00	0.00	0.00	0.00	0.00
Ahelenchida	33.32	8.14	6.36	7.21	29.09
Tylenchida	126.15	56.89	59.84	230.65	65.96
Enoplida	2.69	0.00	4.29	0.71	0.87
Alaimida	1.00	0.00	4.52	0.56	2.23
Mononchida	0.00	0.00	2.78	0.00	0.00
Dorylaimida	5.38	6.16	29.31	23.51	24.53
Diphtherophorida (Triplonchida)	0.00	1.87	1.10	26.70	7.54
unclassifiable	0.00	0.00	0.00	0.00	0.00

Table 7. Total mean abundance of nematodes and parameters of its variability in individual zones of the inverse gorge Brtnický potok (BP), numbers of genera and species, abundance of trophic groups, orders and suborders of soil nematodes. Spring 2010.

Boh. Switzerland NP, June 2010	**BP1**	**BP2**	**BP3**	**BP4**	**BP5**
NEMATODA					
Total mean abundance ind.cm^{-2}	480.49	199.24	116.17	121.34	137.65
Standard deviation (n = 5)	378.09	154.09	62.23	43.35	56.11
Coefficient of variation %	78.69	77.34	53.56	35.73	40.76
Minimum abundance	219.39	63.42	62.78	83.11	82.32
Maximum abundance	1113.84	394.06	201.94	192.10	208.40
Numbers of genera	16	14	30	21	11
Numbers of species (estimate)	25	21	45	34	16
Trophic groups ind.cm^{-2}					
Bacterivores	322.16	36.42	31.06	33.91	37.58
Fungivores	62.40	23.26	0.63	28.19	30.18
Root-fungal feeders	14.48	129.03	7.41	43.84	39.08
Plant parasites	2.07	4.03	54.96	0.93	1.39
Omnivores	79.38	6.50	12.56	14.47	29.40
Predators	0.00	0.00	8.84	0.00	0.00
Insect parasites	0.00	0.00	0.71	0.00	0.00
Orders and suborders ind.cm^{-2}					
Monhysterida	0.00	0.00	1.36	0.86	0.00
Chromadorida	0.00	0.00	0.36	0.00	0.00
Araeolaimida	147.30	20.20	19.07	14.16	24.65
Teratocephalina	4.70	0.00	2.02	1.66	0.00
Cephalobina	38.69	12.75	2.87	14.00	12.59
Rhabditina	0.00	0.00	2.89	0.00	0.00
Diplogastrina	115.14	0.00	0.00	0.00	0.00
Ahelenchida	40.90	15.49	0.35	20.75	26.50
Tylenchida	30.17	134.87	52.90	49.49	43.81
Enoplida	16.32	2.62	0.22	0.00	0.35
Alaimida	0.00	0.85	2.99	3.24	0.00
Mononchida	0.00	0.00	8.84	0.00	0.00
Dorylaimida	79.38	6.50	12.56	14.47	29.40
Diphtherophorida (Triplonchida)	7.88	5.96	9.76	2.71	0.35
unclassifiable	0.00	0.00	0.00	0.00	0.00

Table 8. Total mean abundance of nematodes and parameters of its variability in individual zones of the inverse gorge Kachní potok (KP), numbers of genera and species, abundance of trophic groups, orders and suborders of soil nematodes. Spring 2010.

Boh. Switzerland NP, June 2010	**KP1**	**KP2**	**KP3**	**KP4**	**KP5**
NEMATODA					
Total mean abundance ind.cm^{-2}	71.86	144.57	127.39	84.72	164.31
Standard deviation (n = 5)	20.28	103.55	50.23	34.26	120.66
Coefficient of variation %	28.22	71.63	39.43	40.44	73.43
Minimum abundance	53.86	51.83	61.57	33.70	72.21
Maximum abundance	106.27	286.00	181.21	126.44	371.20
Numbers of genera	15	13	22	12	11
Numbers of species (estimate)	21	19	35	17	19
Trophic groups ind.cm^{-2}					
Bacterivores	13.59	40.40	36.62	19.55	109.37
Fungivores	7.36	48.84	16.81	14.70	25.10
Root-fungal feeders	41.23	27.45	51.60	44.60	26.14
Plant parasites	3.81	0.23	11.29	0.00	0.00
Omnivores	5.88	27.65	9.84	5.87	3.24
Predators	0.00	0.00	1.23	0.00	0.46
Insect parasites	0.00	0.00	0.00	0.00	0.00
Orders and suborders ind.cm^{-2}					
Monhysterida	0.38	0.00	3.47	0.00	0.00
Chromadorida	0.00	0.00	0.00	0.00	0.00
Araeolaimida	4.45	27.55	24.20	9.04	32.95
Teratocephalina	0.00	1.21	0.50	0.00	0.46
Cephalobina	8.37	10.67	4.62	9.64	75.96
Rhabditina	0.00	0.00	0.94	0.00	0.00
Diplogastrina	0.00	0.00	0.00	0.00	0.00
Ahelenchida	4.69	46.39	9.41	4.43	24.51
Tylenchida	46.95	29.33	67.59	51.38	27.19
Enoplida	0.38	0.98	0.53	0.86	0.00
Alaimida	0.00	0.00	2.38	0.00	0.00
Mononchida	0.00	0.00	1.23	0.00	0.00
Dorylaimida	5.88	27.65	9.84	5.87	3.24
Diphtherophorida (Triplonchida)	0.77	0.81	2.70	3.49	0.00
unclassifiable	0.00	0.00	0.00	0.00	0.00

Table 9. The mean abundance (A, ind.cm^{-2}) of nematode trophic groups over all zones of the three gorges studied.

	Jun 2008	Oct 2008	Jun 2009	Oct 2009	Jun 2010
	A	**A**	**A**	**A**	**A**
Bacterivores	70.34	102.04	70.34	75.74	68.13
Fungivores	77.78	243.65	77.78	101.04	26.97
Root-fungal feeders	109.38	240.87	109.38	154.62	59.55
Plant parasites	6.25	18.46	6.25	11.87	8.56
Omnivores	20.45	16.07	20.45	17.73	18.41
Predators	1.03	1.45	1.03	0.87	1.13
Insect parasites	0.38	0.04	0.38	0.13	0.15
All nematodes	285.62	622.57	285.62	362.00	182.88

Table 10. The mean dominance (D, %) of nematode trophic groups over all zones of the three gorges studied.

	Jun 2008	Oct 2008	Jun 2009	Oct 2009	Jun 2010
	D	**D**	**D**	**D**	**D**
Bacterivores	24.63	16.39	24.63	20.92	37.25
Fungivores	27.23	39.14	27.23	27.91	14.75
Root-fungal feeders	38.30	38.69	38.30	42.71	32.56
Plant parasites	2.19	2.97	2.19	3.28	4.68
Omnivores	7.16	2.58	7.16	4.90	10.07
Predators	0.36	0.23	0.36	0.24	0.62
Insect parasites	0.13	0.01	0.13	0.04	0.08
All nematodes	100.00	100.00	100.00	100.00	100.00

Table 11. Mean dominance (%) of most important genera on individual sampling dates with allocation to orders (AR = Araeolaimida, RH = Rhabditida, AP = Aphelenchida, TY = Tylenchida, DO = Dorylaimida, DP = Diphtherophorida) and trophic groups T.G. (B = bacterivores, F = fungivores, RFF = root-fungal feeders, O = omnivores).

	Order	T.G.	June 2008	October 2008	June 2009	October 2009	June 2010
Plectus	AR	B	4.51	3.21	7.17	3.05	9.31
Wilsonema	AR	B	7.26	3.70	2.59	6.23	6.21
Acrobeloides	RH	B	8.12	6.01	6.77	7.58	12.24
Aphelenchoides	AP	F	21.63	36.83	11.04	18.82	10.07
Filenchus	TY	RFF	28.71	26.14	44.33	32.16	23.95
Malenchus	TY	RFF	7.88	11.65	4.47	9.31	6.75
Eudorylaimus	DO	O	6.00	2.29	6.97	4.49	9.61
Tylolaimophorus	DP	F	3.82	1.30	6.78	8.33	2.23

Figure 1. Dendrogram of cluster analysis of the genera (input data ln(ind.cm^{-2} + 1)) in 75 samples of the gorges Hauschengrund (HG), Brtnický potok (BP) and Kachní potok (KP) taken in autumn 2009.

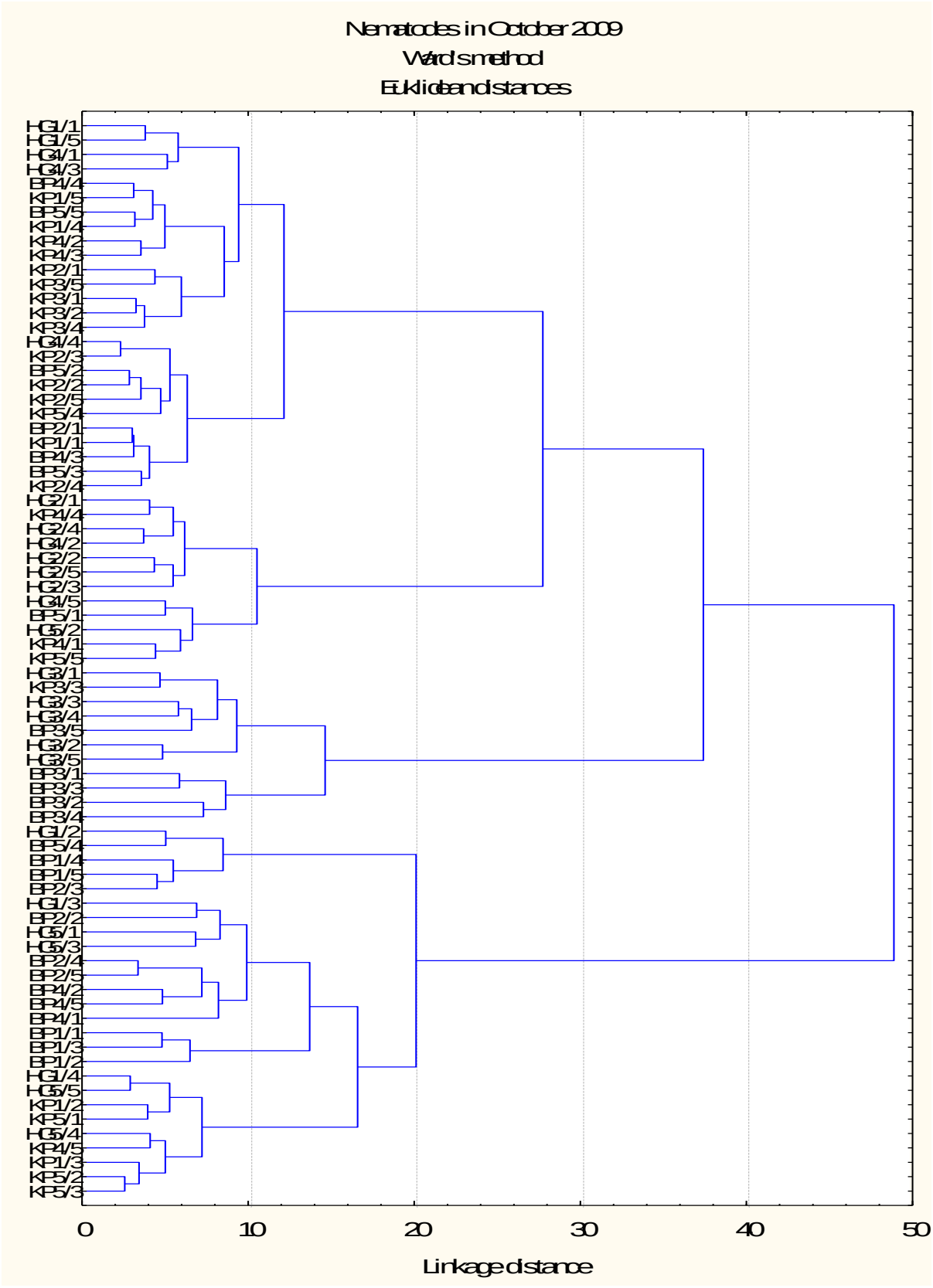


Figure 2. Dendrogram of cluster analysis of the genera (input data ln(ind.cm^{-2} + 1)) in 75 samples of the gorges Hauschengrund (HG), Brtnický potok (BP) and Kachní potok (KP) taken in spring 2010.

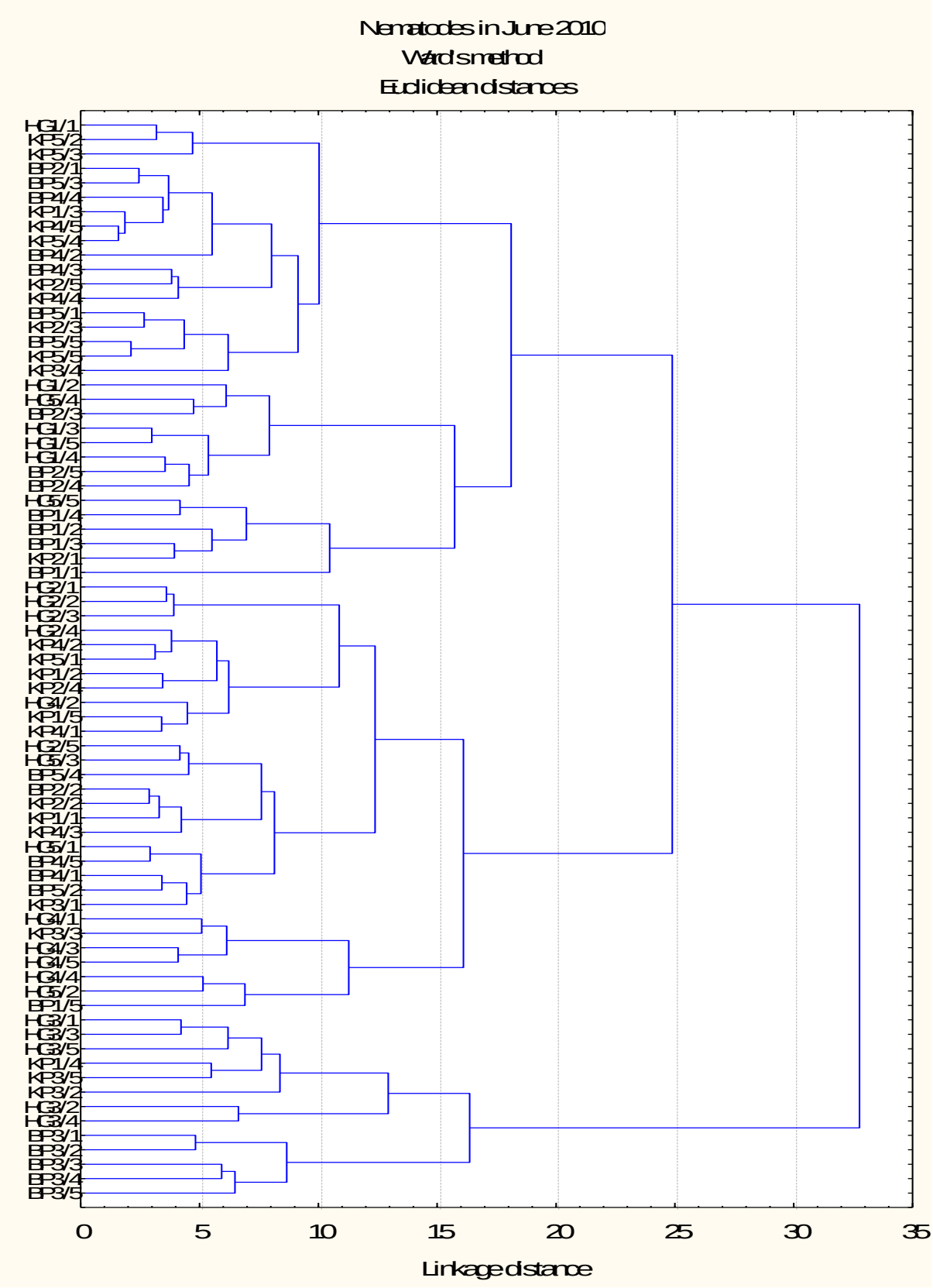


Figure 3. Dendrogram of cluster analysis of the genera (input data ln(ind.cm^{-2} + 1), mean for five samples in each series) in 15 series of samples in the gorges Hauschengrund (HG), Brtnický potok (BP) and Kachní potok (KP) taken in autumn 2009.

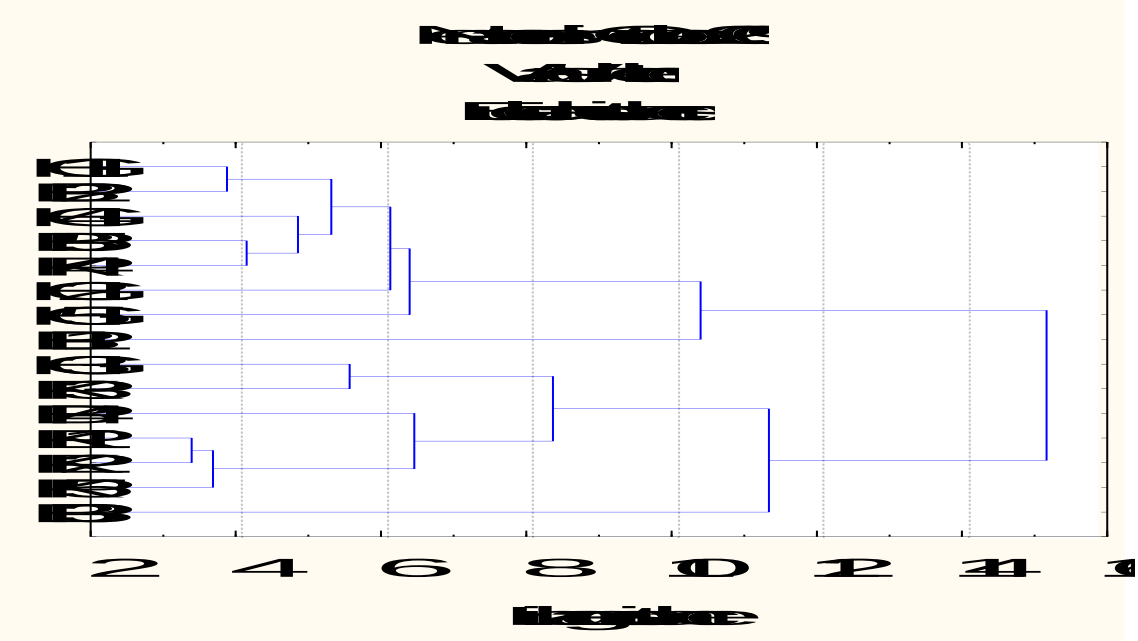


Figure 4. Dendrogram of cluster analysis of the genera (input data ln(ind.cm^{-2} + 1), mean for five samples in each series) in 15 series of samples in the gorges Hauschengrund (HG), Brtnický potok (BP) and Kachní potok (KP) taken in spring 2010.

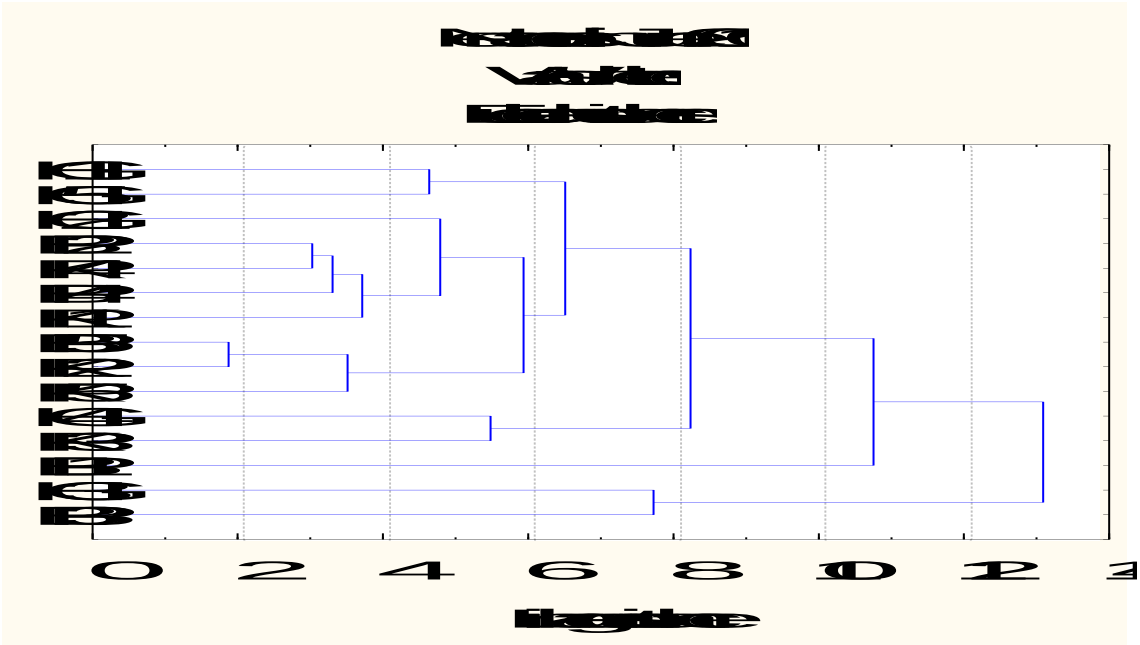
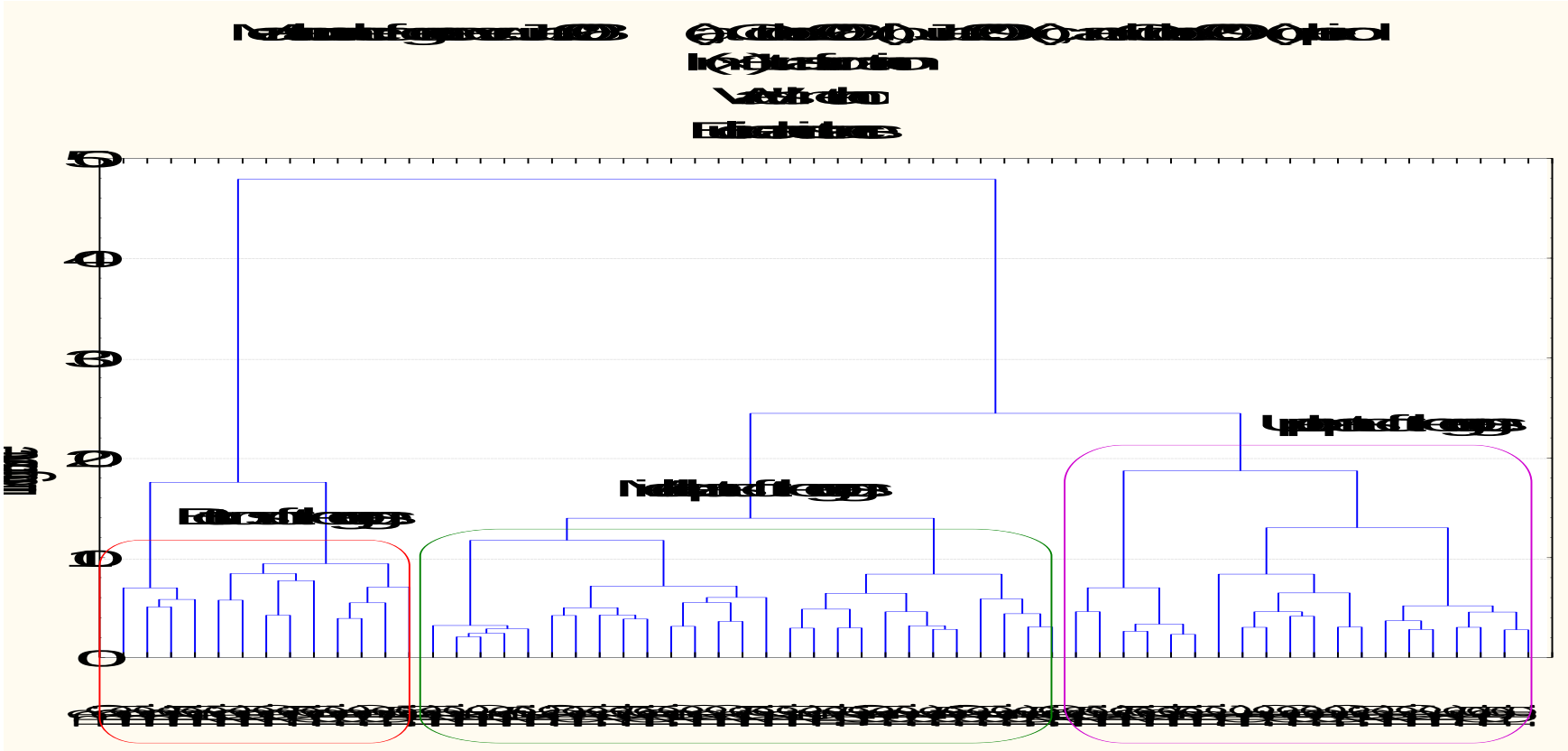


Figure 5. Dendrogram of cluster analysis of the mean abundance of genera including all sampling dates during the study period , i.e. June 2008 (a), October 2008 (b), June 2009 (c), and October 2009 (d), (input data ln(ind.cm^{-2} + 1)) in 15 series of samples in the gorges Hauschengrund (HG), Brtnický potok (BP) and Kachní potok (KP)



Rotifera

A total of 29 species of soil rotifers (Rotifera) have been determined from spring 2008 to spring 2010 in the studied gorges of the Bohemian Switzerland National Park. The number is by 11 species higher than for the previous two years. Of these additional species, three belong to Monogononta (*Colurella* cf. *geophylla*, *Encentrum arvicola*, *Wierzejskiella vagneri*). The otherwise very common genus *Encentrum* has been found in only one specimen, which is unusual. *Macrotrachella* was the most common genus in the samples both in terms of species and individuals (most frequently *Macrotrachela nana*, *M. plicata* and *M. quadricornifera*). *Scepanotrocha corniculata* and *Ceratotrocha cornigera* were also rather common. In the Brtnický potok and Hauschengrund gorges also *Wierzejskiella vagneri* occurred frequently. On the other hand, the genus *Habrotrocha*, which is common in soils, was only rarely present. Also species of the genus *Adineta*, very common elsewhere, occurred only exceptionally at the study sites. The species number identified from individual samples varied between 1 and 7. Shannon's diversity index varied from 0 to 2.0, with highest species diversity at site 4 of the Brtnický potok gorge and sites 1 and 5 of the Hauschengrund gorge. In contrast, Kachní potok was relatively poor in species. Higher species numbers were usually found at the slopes, or more often, the plateau edges, whereas the gorge bottoms hosted fewer species. The Shannon index of diversity values generally support this trend.

The rotifer abundance in investigated plots ranged from 0 to 274 thousand ind. m^{-2}. Most commonly densities of tens of thousand ind.m^{-2} were encountered. The localities Kachní potok and Hauschengrund hosted higher abundances of rotifers at the gorge bottom and lower ones on the slopes. In the Brtnický potok gorge the opposite was found. This may be due to the different type of soil on the bottom of Brtnický potok gorge. However, abundance patterns along the transects were irregular and trends were not very apparent.

Table 12. Rotifer species detected at individual sites (KP - Kachní potok, BP - Brtnický potok, HG - Hauschengrund)

spring 2008 – spring 2010	KP					BP					HG				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Colurella cf. *geophylla*													x		
Encentrum arvicola									x						
Wierzejskiella vagneri								x		x	x				x
Adineta steineri									x		x	x			
Adineta vaga										x					
Ceratotrocha cornigera	x	x	x		x				x						x
Habrotrocha bidens									x		x				
Habrotrocha constricta	x							x							
Habrotrocha rosa	x														x
Habrotrocha sp. 2/3							x	x							
Habrotrocha sp 4/5					x				x	x			x		
Habrotrocha sp 5/8													x		
Habrotrocha sp.															
Macrotrachela concina											x				
Macrotrachela habita						x			x		x				
Macrotrachela multispinosa										x					
Macrotrachela nana	x	x		x				x	x		x	x		x	x
Macrotrachela cf. *petulans*						x									
Macrotrachela plicata				x		x			x		x			x	x
Macrotrachela quadricornifera	x		x			x	x	x	x			x		x	
Macrotrachela sp.						x					x				x
Mniobia tentans					x				x						
Mniobia variabilis									x						
Mniobia sp. 3/3				x					x		x		x		
Mniobia sp. 4/4						x									x
Mniobia sp. Nov. 2/2									x						
Scepanotrocha corniculata						x	x	x	x	x	x		x		x
Scepanotrocha rubra									x						
Scepanotrocha sp.							x								

Enchytraeidae

This interim report as of November 20, 2010 is based on the enchytraeid samplings conducted in October 2008, June 2009, October 2009 and June 2010. When writing this report, the processing of the June 2010 samples has not yet been completed. As described in the methods section, extremely high enchytraeid abundances made it necessary to preserve enchytraeids extracted from almost one half of the soil cores in ethanol and these yet have to be identified.

To date, 20 enchytraeid species have been identified from samples taken in the above-mentioned gorges (Table 13). This are six species more than reported in the 2009 Report. Based on several specimens showing a unique set of characters the presence of one additional *Achaeta* species is assumed (*Achaeta* sp. 1 in Table 13). However, these specimens were very small and either juvenile or injured and thus the identity of this species remains unresolved. Possibly the specimens in question could also be representatives of the same species that has been preliminary identified as *A. antefolliculata*, the lack of further mature specimens with well visible characters prevented a final confirmation of this species identity. In the previous record *Achaeta bibulba* had been reported (as "cf."). Based on further specimens this was corrected to *A. abulba*, a closely related species. This is its first record from Czechia. One other species with a preliminary identification, listed as *Fridericia* cf. *benti*, was reported in 2009, but no further specimens were found to confirm this identification. Two additional *Fridericia* species were collected at bottom of the Häuschengrund gorge, i.e. *F. connata* and *F. isseli*, represented by two and one specimens, respectively. Another species that was recorded at this site in a single specimen was *Enchytronia pratensis*, a species described from Czechia and known from a few localities only. The "polychaetous" *Hrabeiella periglandulata*, was not only found at the bottom of the Brtnický potok gorge, as previously reported, but also at the bottom of the Häuschengrund (4 specimens vs 57 specimens that have been found over the entire study period in samples from the Brtnický potok flooplain). These are the fourth and fifth known localities of this rarely reported species within Czechia. *Mesenchytraeus glandulosus* remains the only species of this genus identified (based on mainly hand-collected mature individuals at the bottom of Brtnický potok gorge). Juveniles of this genus have also been found in the other two gorges studied. Although the recent records have shown the bottom of the Häuschengrund to host a surprisingly high number of small annelid species, the Brtnický potok gorge remained the richest in species. Two additional species were found exclusively here since the last report, i.e. *Buchholzia appendiculata* and *Cognettia cognettii*. The species composition at this site, with species known to prefer less acidic conditions, differs from the other study sites in line with the differing habitat

condition (litter from deciduous trees, higher soil pH). With ten enchytraeid species Kachní potok gorge remains the species poorest of the studied gorges. *Oconerella cambrensis* was recorded here for the first time in 2010, at the gorge edge and mid slope as well as at the bottom. This species was not found in the other gorges but its cogener *O. tubifera* is present there instead.

Looking at the distribution of enchytraeids (and *Hrabeiella periglandulata*) along the gorge cross sections (Table 14), most species have been found at the bottom of the gorges. This is, in particular, due to the species-rich assemblage present on the narrow flood plain of the Brtnický potok gorge with an open stand of various deciduous trees. However, also the Häuschengrund gorge bottom has been shown to host several additional species. The slopes and plateaus of the gorges are dominated by the species *Marionina clavata*, *Cognettia sphagnetorum*, *Achaeta camerani* and *A. brevivasa*. Such an assemblage is typical of rather moist, coniferous forests with acidic soils.

Enchytraeid densities (Table 15) are more difficult to interpret as the present data are based on a small sample size. Densities range between less than three thousand and more than 160 thousand individuals per square metre (based on partially preliminary data). There is no clearcut trend in regard to enchytraeid abundance across the transverse transects. In the case of the Brtnický potok gorge, the densities at the gorge bottom seem to be lower than those on the slopes and plateaus, at least for some periods. It is a known fact that highest enchytraeid densities (reaching maxima of over 100 thousand individuals per square metre) are reached in raw humus layers of acidic forests and peatlands, where species-poor enchytraeid assemblages consist of very numerous populations. In contrast, the more diverse enchytraeid assemblages are found in less acidic to neutral soils, where total enchytraeid densities might not exceed several thousand individuals per square metre. In the Brtnický potok gorge, acid-tolerant species as *Marionina clavata*, *Cognettia sphagnetorum* and *Achaeta camerani* can apparently build up much larger populations in the raw humus (mor) forest floor on the slopes and plateaus than in the floodplain habitat along the brook. However, dry spells can probably reduce enchytraeid populations substantially, affecting the exposed gorge edges or plateaus (and partially also the mid slopes of the gorges) more severely than the bottoms. This aspect will be evaluated in more detail in the final report, once all density data as well as microclimate data from the gorges are available. Then we shall also look at vertical distribution in the soil profile and enchytraeid biomass (biomass measurements allowing an calculation from densities of individual species and size classes have been done in 2010).

Table 13: List of Enchytraeidae and other annelids of small body size found in the three investigated gorges.

Species / Site	Brtnický potok	Hauschengrund	Kachní potok
Achaeta abulba	+		+
Achaeta affinis	+	+	
Achaeta cf. *antefolliculata*		+	
Achaeta brevivasa	+	+	+
Achaeta camerani	+	+	+
Achaeta sp. 1			+
Buchholzia appendiculata	+		
Cognettia cognettii	+		
Cognettia sphagnetorum	+	+	+
Enchytraeus buchholzi s.l.	+	+	
Enchytraeus norvegicus	+	+	+
Enchytronia parva	+		+
Enchytronia pratensis		+	
Fridericia cf. *benti*	+		
Fridericia connata		+	
Fridericia isseli		+	
Fridericia spp.	(+)		+
Marionina clavata	+	+	+
Mesenchytraeus glandulosus	+		
Mesenchytraeus spp.	(+)	+	+
Oconnorella cambrensis			+
Oconnorella tubifera	+	+	
Stercutus niveus	+		
Hrabeiella periglandulata	+	+	
No of species (Ench. + Hrab.)	15 + 1	13 + 1	10

Table 14: List of Enchytraeidae and other annelids of small body size found at the individual sites (1-5) sampled along the cross sections of the three investigated gorges.

Species / Sampling site within the gorge cross section	1	2	3	4	5
Achaeta abulba			+		
Achaeta affinis			+		
Achaeta cf. *antefolliculata*					+
Achaeta brevivasa	+	+	+	+	+
Achaeta camerani		+	+	+	
Achaeta sp. 1					+
Buchholzia appendiculata			+		
Cognettia cognetii			+		
Cognettia sphagnetorum	+	+	+	+	+
Enchytraeus buchholzi s.l.			+		
Enchytraeus norvegicus	+		+		
Enchytronia parva			+		
Enchytronia pratensis			+		
Fridericia connata			+		
Fridericia cf. *benti*			+		
Fridericia isseli			+		
Fridericia spp.	+		(+)		
Marionina clavata	+	+	+	+	+
Mesenchytraeus glandulosus			+		+
Mesenchytraeus spp.	+	+	(+)	+	+
Oconerella cambrensis	+		+	+	
Oconnorella tubifera			+		
Stercutus niveus			+	+	+
Hrabeiella periglandulata			+		
No of species (Ench. + Hrab.)	7	5	19 + 1	7	7

Table 15: Mean densities and standard errors of the mean of enchytraeids along the gorge cross sections (positions 1-5) per sampling date (where SE is given, the density value is a mean of numbers of individuals extracted from two soil cores, otherwise only data for one soil core are available to date; "data def." given when data deficient, i.e. up to date no complete count of individuals available for neither of the two soil cores).

Density ± SE (ind./m^2) / Position along the gorge cross section	1	2	3	4	5
Brtnický potok					
October 2008	14118 ± 1176	40883 ± 37353	8824 ± 4118	4706 ± 2353	20000 ± 18824
June 2009	18824 ± 13530	3824 ± 882	12647 ± 1471	55589 ± 52059	3235 ± 294
October 2009	2353 ± 2353	10000 ± 5882	13824 ± 1471	4412 ± 1471	3235 ± 1471
June 2010	2353	132942	8824 ± 4706	11177	7941 ± 294
Häuschengrund					
October 2008	4412 ± 3235	21177 ± 9412	59118 ± 45589	21765 ± 7059	28530 ± 12059
June 2009	18530 ± 3235	19412 ± 8235	73824 ± 6177	48236 ± 6471	16177 ± 15000
October 2009	3529 ± 1176	19118 ± 1471	27647 ± 12941	48824 ± 34706	27647 ± 24706
June 2010	28236	26471	0	27059	Data def.
Kachní potok					
October 2008	16765 ± 294	16765 ± 7353	2353 ± 2353	14412 ± 294	7647 ± 1176
June 2009	5000 ± 2647	5588 ± 3235	11177 ± 1176	22353 ± 17059	19412 ± 1765
October 2009	16176 ± 9706	4705 ± 1765	22353 ± 12353	5294 ± 588	13235 ± 7373
June 2010	128236	Data def.	81765	53530	162943

Lumbricidae

Earthworms inhabited almost exclusively the bottom parts of the gorges studied, where their density ranged from 5.3 to 330 ind.m^{-2} (Tab. 16). Here they find suitable moisture conditions and sufficient food sources, whereas the dry soil of the coniferous stands on the slopes and plateaus represents a very hostile environment for earthworms. Exceptionally, earthworms were recorded from the slopes of gorges, however always in very low densities. The only exception represented the density of 21.3 ± 18.5 ind.m^{-2} recorded at the KP2 site in June 2010.

No marked differences in the composition of earthworm assemblages were found among the individual gorges. Five species (*Aporrectodea caliginosa*, *Dendrobaena illyrica*, *D. octaedra*, *D. vejdovskyi,* and *Dendrodrilus rubidus*) were recorded from the acid soil of the Hauschengrund gorge. The same species belonged to the core ones in both other gorges under study. In addition, the epigeic earthworms *Kritodrilus auriculatus* and *Lumbricus rubellus* were found at the bottom of the Brtnický potok gorge, where a dense herb layer and deciduous trees were present. At the bottom of the Kachní potok gorge, characterised by numerous waterlogged places, the amphibious *Eiseniella tetraedra*, hygrophilous *Octolasion tyrtaeum* and euryoecious *O. lacteum* were present in addition. The epigeic earthworms *Dendrobaena octaedra*, *Dendrobaena vejdovskyi* and *Lumbricus rubellus* predominated in all gorges. Representatives of endogeic earthworms were found here as well (*Aporrectodea caliginosa* in the Brtnický potok gorge and *Octolasion lacteum* in the Kachní potok gorge) indicating the presence of a deep soil profile with high amount of decomposed organic matter. *Dendrobaena illyrica* and *D. vejdovskyi* were the only two species recorded from the slopes of the gorges.

Table 16. Earthworm densities (ind.m^{-2} ± SD) at individual sites of the localities under study.

	24.6.2008	15.10.2008	24.6.2009	6.10.2009	22.6.2010	5.10.2010
BP1	-	-	-	-	-	5.3±9.2
BP2	-	-	-	-	-	5.3±9.2
BP3	90.7±9.2	37.3±36.9	112.7±40.3	101.3±120.1	58.7±48.9	85.3±72.1
BP4	-	-	-	-	5.3±9,2	-
BP5	-	-	-	32.0±55,4	-	-
HG1	-	-	-	-	-	5.3±9.2
HG2	-	-	-	-	5.3±9.2	-
HG3	42.7±9.2	32.0±27.7	69.3±20.1	69.3± 6.2	5.3±9.2	117.5±93.8
HG4	-	-	-	-	5.3±9.2	-
HG5	-	-	-	-	-	-
KP1	-	-	-	-	-	-
KP2	-	-	-	-	21.3 ± 18.5	5.3±9.2
KP3	181.3±48.9	330.7±260.1	165.3±29.3	138.7±137.9	32.0±27.7	133.3±145.2
KP4	5.3±9.2	-	5.3±9.2	-	-	-
KP5	-	-	16.0±16.0	-	5.3±9.2	-

Oribatida

The lowest abundance was reached at the bottom of the Kachní potok gorge (Tab. 17). The highest densities were found in the spruce stands on the slopes and somewhat lower but still high ones in the pine stands on the edges of the gorges. Following species had lowest population densities at the gorge bottoms and the highest one on the slopes and gorge edges: *Tectocepheus velatus, Microtritia minima, Atropacarus striculus, Microppia minus, Eupelops torulosus, Eniochthonius minutissimus,* and *Carabodes ornatus*. A second distinct group comprises species with maximal population densities at the gorge bottom: *Acrogalumna longiplumma, Minunthozetes semirufus, Oppiella nova,* and *Platynothrus peltifer*.

Table 17. Basic community characteristics of oribatid mites along a transverse transect across the Kachní potok gorge (A – mean abundance in ind.m^{-2}, S – total species number)

	KP1	KP2	KP3	KP4	KP5
Spring 2008					
A	37400	77200	35600	99000	50800
S	30	36	32	25	25
Autumn 2008					
A	52400	89600	44800	87400	64600
S	30	36	30	23	26
Spring 2009					
A	44600	62200	40400	77400	55600
S	28	29	24	22	24
Autumn 2009					
A	66200	70200	45600	74200	63600
S	32	25	23	26	29
Spring 2010					
A	49600	41000	34400	44400	54800
S	26	23	22	20	22,6

Changes of the main community characteristics along the transverse transect across the Brtnický potok gorge are shown in Tab. 18. Again the lowest mean abundance was at the gorge bottom and the highest on top on the gorge edge. Following species reached maximum abundance on top and minimum abundace at the gorge bottom: *Atropacarus striculus, Eniochthonius minutissimus, Licneremaeus licnophorus, Microtritia minima, Porobelba spinosa,* and *Tectocepheus velatus*. In contrast, the following species reached highest abundance at the gorge bottom: *Conchogneta dalecarlica, Dissorhina ornata, Luroppia falcata, Medioppia subpectinata,* and *Minunthozetes semirufus*.

Table 18. Basic community characteristics of oribatid mites along a transverse transect across the Brtnický potok gorge (A – mean abundance in ex.m^{-2}, S – total species number)

	BP1	BP2	BP3	BP4	BP5
Spring 2008					
A	73800	70800	35600	68600	51000
S	26	32	36	31	29
Autumn 2008					
A	41400	63800	52800	71800	52600
S	29	29	32	30	26
Spring 2009					
A	61400	61000	24800	71800	50600
S	25	28	30	27	27
Autumn 2009					
A	75200	76600	27400	65800	62000
S	29	31	29	29	30
Spring 2010					
A	56400	59800	28000	48000	53800
S	23	26	35	26	25

Changes of main community characteristics along the transverse transect across the Hauschengrund gorge are shown in Tab. 19. Regarding mean abundance, a similar pattern as at the other localities was found. The highest species richness was found at the gorge bottom. However, in comparison with the above-mentioned gorges the difference between the population density at the bottom and on the gorge slopes was less distinct. Species with maximal population density on gorge slopes were *Carabodes marginatus, Eniochthonius minutissimus, Microtritia minima,* and *Tectocepheus velatus*. Species with the highest population density at the gorge bottom were *Malaconothrus gracilis, Minunthozetes semirufus* and *Quadroppia monstruosa*.

Table 19. Basic community characteristics of oribatid mites along a transverse transect across the Hauschengrund gorge (A – average abundance in ex.m^{-2}, S – total species number)

	HG1	HG2	HG3	HG4	HG5
Spring 2008					
A	26200	52000	38800	88000	85800
S	13	30	40	38	14
Autumn 2008					
A	88200	66400	35600	68200	76200
S	15	29	34	33	17
Spring 2009					
A	41800	47800	38800	43200	47400
S	15	29	40	24	14
Autumn 2009					
A	36800	33200	33400	38200	50400
S	17	31	33	31	22
Spring 2010					
A	38200	32400	24000	38400	41600
S	15	25	29	35	16

Diplopoda, Chilopoda and Oniscidea

In the Kachní potok gorge, millipedes (Table 20) were recorded in soil samples irregularly during the whole study. A more stable occurrence, but in quite low densities, was found in the mid part of the right slope (KP2) and at the gorge bottom (KP3). Centipedes (Table 21) were recorded at all sites. No trend was apparent from the distribution accross the gorge. The spring samplings indicate higher densities in the middle and at the bottom, the autumnal data show higher densities at the gorge edges. The evaluation of all data in connection with temperature and humidity parameters of individual sampling sites will be conducted subsequent to the analysis of the material sampled in October 2010. Isopods were permanently missing in the soil samples.

Table 20. Millipede densities (ind.m^{-2} ± SE) at individual sites of the Kachní potok gorge.

	24.6.2008	15.10.2008	24.6.2009	6.10.2009	22.6.2010	5.10.2010
KP1	-	-	-	-	5.3 ± 5.3	-
KP2	5.3 ± 5.3	-	5.3 ± 5.3	26.7 ± 5.3	10.7 ± 10.7	-
KP3	-	-	10.7 ± 10.7	5.3 ± 5.3	5.3 ± 5.3	-
KP4	-	-	-	-	-	5.3 ± 5.3
KP5	-	-	-	-	-	-

Table 21. Centipede densities (ind.m^{-2} ± SE) at individual sites of the Kachní potok gorge. nd – not completed.

	24.6.2008	15.10.2008	24.6.2009	6.10.2009	22.6.2010	5.10.2010
KP1	85.3 ± 35.0	208.0 ± 80.5	53.3 ± 14.1	197.3 ± 80.7	101.3 ± 28.2	nd
KP2	128.0 ± 40.3	192.0 ± 48.9	74.7 ± 23.2	181.3 ± 64.9	138.7 ± 37.3	nd
KP3	154.7 ± 83.8	128.0 ± 56.2	96.0 ± 56.2	80.0 ± 64.7	128.0 ± 32.0	nd
KP4	197.3 ± 70.6	122.7 ± 23.2	112.0 ± 48.9	112.0 ± 24.4	106.7 ± 32.4	nd
KP5	74.7± 66.8	48.0 ± 16.0	32.0 ± 16.0	133.3 ± 59.4	90.7 ± 50.9	nd

Representatives of millipedes occurred irregularly in all parts of the Brtnický potok gorge, higher densities were found on the bottom of the gorge (Table 22). Centipedes occurred all accross the gorge (Table 23) without any linkage to certain parts. The highest centipede densities were permanently found at the uppermost site (BP5). A final evaluation of centipede distribution will be done once the last autumnal samples have been processed. The occurrence of terrestrial isopods was strictly limited to the bottom of the Brtnický potok valley (Table 24).

Table 22. Millipede densities (ind.m^{-2} ± SE) at individual sites of the Brtnický potok gorge.

	25.6.2008	15.10.2008	24.6.2009	6.10.2009	23.6.2010	6.10.2010
BP1	-	-	-	-	-	5.3 ± 5.3
BP2	-	-	5.3 ± 5.3	5.3 ± 5.3	-	-
BP3	21.3 ± 5.3	10.7 ± 10.7	42.7 ± 5.3	-	21.3 ± 5.3	5.3 ± 5.3
BP4	-	10.7 ± 5.3	-	-	-	16.0 ± 16.0
BP5	5.3 ± 5.3	-	5.3 ± 5.3	-	32.0 ± 18.5	16.0 ± 9.2

Table 23. Centipede densities (ind.m^{-2} ± SE) at individual sites of the Brtnický potok gorge. nd – not completed.

	25.6.2008	15.10.2008	24.6.2009	6.10.2009	23.6.2010	6.10.2010
BP1	117.3 ± 42.7	85.3 ± 19.2	69.3 ± 23.2	32.0 ± 9.2	90.7 ± 35.0	nd
BP2	42.7 ± 19.2	58.7 ± 28.2	144.0 ± 72.2	21.3 ± 10.7	106.7 ± 10.7	nd
BP3	186.7 ± 124.1	101.3 ± 54.1	138.7 ± 28.2	64.0 ± 37.0	69.3 ± 19.2	nd
BP4	144.0 ± 33.3	122.7 ± 23.2	112.0 ± 18.5	64.0 ± 24.4	272.0 ± 124.3	nd
BP5	314.7 ± 91.1	165.3 ± 94.4	362.7 ± 155.8	170.7 ± 75.2	112.0 ± 9.2	nd

Table 24. Density of terrestrial isopods (ind.m^{-2} ± SE) at individual sites of the Brtnický potok gorge.

	25.6.2008	15.10.2008	24.6.2009	6.10.2009	23.6.2010	6.10.2010
BP1	-	-	-	-	-	-
BP2	-	-	-	-	-	-
BP3	10.7 ± 10.7	32.0 ± 9.2	42.7 ± 35.0	37.3 ± 19.2	5.3 ± 5.3	10.7 ± 10.7
BP4	-	-	-	-	-	-
BP5	-	-	-	-	-	-

In the Hauschengrund gorge, millipedes showed a non-uniform distribution along the transverse transect (Table 25). In the first set of samples (June 2008), we found higher densities of millipedes outside the bottom of the gorge (HG1, HG2 and HG4), on the following sampling dates millipedes occurred on the slopes and at the bottom of the gorge. Compared to the other two monitored gorges, the densities of centipedes (Table 26) did not show marked differences. High densities were characteristic mostly for the gorge bottom in the first sampling terms. In the last samples the densities fluctuated more markedly, with high values found at the gorge eges. Over the three-year study period, terrestrial isopods were only recorded in the autumn samples (Table 27), being restricted to the bottom (HG3) and mid slope of the gorge (HG4).

Table 25. Millipede densities (ind.m^{-2} ± SE) at individual sites of the Hauschengrund gorge.

	25.6.2008	15.10.2008	24.6.2009	6.10.2009	23.6.2010	6.10.2010
HG1	21.3 ± 21.3	-	-	-	-	-
HG2	5.3 ± 5.3	-	5.3 ± 5.3	10.7 ± 10.7	-	-
HG3	-	-	5.3 ± 5.3	5.3 ± 5.3	-	10.7 ± 5.3
HG4	16.0 ± 16.0	-	-	-	5.3 ± 5.3	-
HG5	-	-	-	-	-	-

Table 26. Centipede densities (ind.m^{-2} ± SE) at individual sites of the Hauschengrund gorge. nd – not completed.

	25.6.2008	15.10.2008	24.6.2009	6.10.2009	23.6.2010	6.10.2010
HG1	26.7 ± 14.1	58.7 ± 19.2	26.7 ± 14.1	69.3 ± 5.3	149.3 ± 47.4	nd
HG2	53.3 ± 26.7	26.7 ± 19.2	58.7 ± 14.1	37.3 ± 10.7	74.7 ± 14.1	nd
HG3	96.0 ± 33.3	74.7 ± 19.2	64.0 ± 33.3	69.3 ± 19.2	42.7 ± 10.7	nd
HG4	48.0 ± 32.0	32.0 ± 16.0	53.3 ± 10.7	5.3 ± 5.3	48.0 ± 33.3	nd
HG5	53.3 ± 10.7	48.0 ± 24.4	26.7 ± 5.3	165.3 ± 126.1	42.7 ± 5.3	nd

Table 27. Densities of terrestrial isopods (ind.m^{-2} ± SE) at individual sites of the Hauschengrund gorge.

	25.6.2008	15.10.2008	24.6.2009	6.10.2009	23.6.2010	6.10.2010
HG1	-	-	-	-	-	-
HG2	-	-	-	-	-	-
HG3	-	21.3 ± 5.3	-	32.0 ± 16.0	-	-
HG4	-	-	-	-	-	5.3 ± 5.3
HG5	-	-	-	-	-	-

THE INVENTORY OF SELECTED IMPORTANT GROUPS OF SOIL FAUNA IN INVERSE GORGES (SAMPLING ALONG THE GORGE BOTTOMS)

LOCALITIES

In 2010, work on an inventory of soil fauna groups important from the bioindication point of view (oribatid mites, earthworms, diplopods, centipedes, and terrestrial isopods) has been conducted in six inverse gorges: ***Brtnický potok*** **(BP),** ***Hauschengrund*** **(HG),** ***Kachní potok*** **(KP),** ***Babylon*** **(BA)**, ***Dolský mlýn*** **(DM)** and ***Pryskyřičný důl*** **(PD)**. In June 2010, the research was finished in **BA, DM** and **PD**, but started in another three oligotrophic gorges: ***Soorgrund*** **(SG),** ***Střelecká rokle*** **(SR)** and ***Černá Brána*** **(CB)**. GPS co-ordinates and altitudes of the individual sites, including those studied in the preceding years, are given in Tab. 28.

When writing this report, the processing of macrofauna collected at the three newly studied gorges has not yet been completed.

Table 28. GPS co-ordinates and altitudes of individual sites

Locality	**Site**	**GPS co-ordinates**	**Altitude**
Brtnický potok	BP I	N50 55.774 E14 24.596	327 m
	BP II	N50 56.022 E14 24.314	313 m
	BP III	N50 56.116 E14 24.410	332 m
Hauschengrund	HG I	N50 52.599 E14 22.402	317 m
	HG II	N50 52.596 E14 22.348	324 m
	HG III	N50 52.596 E14 22.267	343 m
Kachní potok	KP I	N50 51.779 E14 18.454	263 m
	KP II	N50 51.726 E14 18.547	269 m
	KP III	N50 51.649 E14 18.548	164 m
Ferdinandova soutěska	FS I	N50 50.699 E14 21.076	253 m
	FS II	N50 50.719 E14 21.056	289 m
	FS III	N50 50.675 E14 21.072	314 m
Zlé díry	ZD I	N50 52.920 E14 22.721	277 m
	ZD II	N50 52.899 E14 22.662	283 m
	ZD III	N50 52.879 E14 22.640	318 m
Tichá soutěska	TS I	N50 52.327 E14 15.428	155 m
	TS II	N50 52.333 E14 15.564	156 m
	TS III	N50 52.301 E14 15.642	145 m
Babylon	BA I	N50 52.388 E14 22.670	287 m
Dolský mlýn	DM I	N50 50.839 E14 20.888	328 m
Pryskyřičný důl	PD I	N50 53.952 E14 24.275	306 m
Soorgrund	SG I	50°51'52.46"N,14°19'22.23"E	243m
Střelecká rokle	SR I	50°53'29.16"N,14°21'37.09"E	241 m
Černá Brána	CB I	50°54'02.51"N,14°23'26.10"E	249 m

METHODS

Three sites were chosen at each gorge under study (points of a longitudinal transect along the gorge bottom). The first site (I) was located at the mouth of the gorge, i.e. in the part with the lowest altitude, the second (II) in the middle of the gorge and the third (III) at the end of the gorge, i.e. at its bottom part with the highest altitude.

For the inventory of oribatid mites, five soil samples (each 10 cm^2, 10 cm in depth) were taken at each site on each sampling occassion. Soil samples were transported to the laboratory, where oribatid mites were extracted using modified Berlese-Tullgren funnels at a temperature of 35 ^oC for five days. Oribatids were cleared in temporary microscopic slides with 80% lactic acid, identified at the species level and transferred to glycerol.

To study soil macrofauna, 5 pitfall traps (the trapping area of each was 78.5 cm^2, formaldehyde solution was used as killing and preserving agent) were exposed at each site. The traps were positioned in a line with a distance of 5 m between the traps.

The material is being successively processed. In the lists below, all species identified up to now are given.

LIST OF SPECIES RECORDED AT THE INDIVIDUAL LOCALITIES

Brtnický potok

Oribatida

Acrogalumna longiplumma, Adoristes ovatus, Achipteria coleoptrata, Atropacarus striculus, Autogneta longilamellata, Belba compta, Belba pseudocorynopus, Berniniella bicarinata, Berniniella sigma, Brachychthonius berlesei, Brachychthonius impressus , Caleremaeus monilipes, Camisia biurus, Camisia spinifer, Carabodes areolatus, Carabodes coriaceus, Carabodes femoralis, Carabodes labyrinthicus, Carabodes marginatus, Carabodes ornatus, Carabodes rugosior, Carabodes tenuis, Ceratoppia sexpilosa, Ceratozetes gracilis, Ceratozetes minutissimus, Conchogneta dalecarlica, Cultroribula bicultrata, Damaeobelba minutissima, Dissorhina ornata, Dissorhina signata, Edwardzetes edwardsii, Eniochthonius minutissimus, Eobrachychthonius borealis, Eueremaeus silvestris, Eulohmannia ribagai, Eupelops occultus, Eupelops plicatus, Eupelops torulosus, Euzetes globulus, Fuscozetes setosus, Galumna lanceata, Gehypochthonius rhadamanthus, Gustavia microcephala, Hemileius initialis, Hermannia gibba, Hypochthonius rufulus, Chamobates borealis, Chamobates voigtsi, Lauroppia falcata, Lauroppia neerlandica, Liacarus coracinus, Licneremaeus licnophorus, Licnodamaeus pulcherrimus, Liebstadia longior, Liebstadia similis, Liebstadia willmanni, Liochthonius alpestris, Liochthonius brevis, Liochthonius horridus, Liochthonius hystricinus, Liochthonius perfusorius, Liochthonius sellnicki, Malaconothrus gracilis, Medioppia obsoleta, Medioppia subpectinata, Metabelba pulverosa, Micreremus brevipes, Microppia minus, Microtritia minima, Minunthozetes semirufus, Mixochthonius pilosetosus, Nanhermannia coronata, Nanhermannia nana, Nothrus silvestris, Oppiella nova, Oribatella calcarata, Oribatella quadricornuta , Oribatula tibialis, Pantelozetes paolii, Parachipteria willmanni, Phauloppia raschenensis, Phthiracarus sp.1, Platynothrus peltifer, Porobelba spinosa, Quadroppia monstruosa, Quadroppia quadricarinata, Rhysotritia ardua, Rhysotritia duplicata, Sellnickochthonius immaculatus, Sellnickochthonius jacoti, Sellnickochthonius rostratus, Sellnickochthonius suecicus, Sellnickochthonius zelawaiensis, Spatiodamaeus verticilipes, Steganacarus applicatus, Suctobelba regia, Suctobelba reticulata, Suctobelba trigona, Suctobelbella acutidens, Suctobelbella alloenasuta, Suctobelbella falcata, Suctobelbella nasalis, Suctobelbella palustris, Suctobelbella sarekensis, Suctobelbella similis, Suctobelbella subcornigera, Suctobelbella subtrigona, Tectocepheus knullei, Tectocepheus minor, Tectocepheus velatus, Trichoribates trimaculatus, Zygoribatula exilis

Lumbricidae

Aporrectodea caliginosa, Aporrectodea handlirschi, Dendrobaena illyrica, Dendrobaena octaedra, Dendrobaena vejdovskyi, Dendrodrilus rubidus, Lumbricus rubellus

Diplopoda

Craspedosoma rawlinsi, Haasea flavescens, Julus scandinavius, Leptoiulus trilobatus, Mastigona bosniensis, Mycogona germanica, Ochogona caroli, Polydesmus complanatus, Polydesmus denticulatus, Unciger foetidus

Oniscidea

Ligidium hypnorum, Porcellium conspersum, Protracheoniscus politus, Trichoniscus pusillus

Hauschengrund

Oribatida

Acrogalumna longiplumma, Adoristes ovatus, Achipteria coleoptrata, Atropacarus striculus, Autogneta longilamellata, Banksinoma lanceata, Belba compta, Belba pseudocorynopus, Berniniella bicarinata, Berniniella sigma, Brachychthonius impressus, Caleremaeus monilipes, Camisia biurus, Camisia spinifer, Carabodes areolatus, Carabodes coriaceus, Carabodes femoralis, Carabodes labyrinthicus, Carabodes marginatus, Carabodes ornatus, Carabodes subarcticus, Carabodes tenuis, Cepheus cepheiformis, Ceratozetes gracilis, Ceratozetes mediocris, Ceratozetes minutissimus, Conchogneta dalecarlica, Cultroribula bicultrata, Damaeobelba minutissima, Dissorhina ornata, Edwardzetes edwardsii, Eniochthonius minutissimus, Eulohmannia ribagai, Eupelops plicatus, Eupelops torulosus, Euphthiracarus cribrarius, Euphthiracarus monodactylus, Euzetes globulus, Fuscozetes setosus, Galumna lanceata, Gehypochthonius rhadamanthus, Hemileius initialis, Heminothrus targionii, Hermannia gibba, Hypochthonius rufulus, Chamobates borealis, Chamobates voigtsi, Lauroppia falcata, Lauroppia neerlandica, Licnodamaeus pulcherrimus, Liebstadia similis, Liebstadia willmanni, Liochthonius alpestris, Liochthonius brevis, Liochthonius evansi, Liochthonius horridus, Liochthonius hystricinus, Liochthonius perfusorius, Malaconothrus gracilis, Medioppia subpectinata, Melanozetes meridianus, Melanozetes mollicomus, Microppia minus, Microtritia minima, Minunthozetes semirufus, Nanhermannia coronata, Nothrus silvestris, Odontocepheus elongatus, Oppiella nova, Oribatella quadricornuta, Oribatula tibialis, Parachipteria willmanni, Phthiracarus sp.1, Platynothrus peltifer, Porobelba spinosa, Quadroppia monstruosa, Quadroppia quadricarinata, Rhysotritia duplicata, Sellnickochthonius honestus, Sellnickochthonius immaculatus, Sellnickochthonius jacoti, Sellnickochthonius zelawaiensis, Spatiodamaeus verticilipes, Steganacarus applicatus, Suctobelba regia, Suctobelba reticulata, Suctobelba trigona, Suctobelbella acutidens, Suctobelbella falcata, Suctobelbella nasalis, Suctobelbella palustris, Suctobelbella sarekensis, Suctobelbella similis, Suctobelbella subcornigera, Suctobelbella subtrigona, Tectocepheus knullei, Tectocepheus velatus, Trhypochthonius cladonicola, Trichoribates trimaculatus, Trimalaconothrus glaber, Zygoribatiula exilis

Lumbricidae

Allolobophora eiseni, Aporrectodea caliginosa, Aporrectodea rosea, Dendrobaena illyrica, Dendrobaena octaedra, Dendrobaena vejdovskyi, Dendrodrilus rubidus, Octolasion lacteum, Octolasion tyrtaeum

Diplopoda

Craspedosoma rawlinsi, Glomeris hexasticha, Leptoiulus trilobatus, Mycogona germanica, Ochogona caroli, Polydesmus complanatus, Polydesmus denticulatus

Oniscidea

Ligidium hypnorum, Trachelipus ratzeburgii, Trichoniscus pusillus

Kachní potok

Oribatida

Acrogalumna longiplumma, Adoristes ovatus, Achipteria coleoptrata, Allosuctobelba grandis, Atropacarus striculus, Belba pseudocorynopus, Berniniella bicarinata, Berniniella sigma, Brachychthonius berlesei, Caleremaeus monilipes, Camisia biurus, Camisia spinifer, Carabodes areolatus, Carabodes coriaceus, Carabodes labyrinthicus, Carabodes marginatus, Carabodes ornatus, Carabodes subarcticus, Carabodes tenuis, Cepheus cepheiformis, Ceratozetella thienemanni, Ceratozetes gracilis, Ceratozetes minutissimus, Conchogneta dalecarlica, Cymberemaeus cymba, Damaeobelba minutissima, Dissorhina ornata, Edwardzetes edwardsii, Eniochthonius minutissimus, Eulohmannia ribagai, Eupelops occultus, Eupelops plicatus, Eupelops torulosus, Euphthiracarus cribrarius, Euphthiracarus monodactylus, Euzetes globulus, Furcoribula furcillata, Fuscozetes setosus, Galumna lanceata, Gehypochthonius rhadamanthus, Gustavia microcephala, Hemileius initialis, Heminothrus longisetosus, Heminothrus targionii, Hermannia gibba, Hypodamaeus gracilipes, Hypochthonius rufulus, Chamobates borealis, Chamobates cuspidatus, Chamobates voigtsi, Lauroppia falcata, Lauroppia marginedentata, Lauroppia neerlandica, Liacarus coracinus, Licneremaeus licnophorus, Licnodamaeus pulcherrimus, Liebstadia longior, Liebstadia pannonica, Liebstadia similis, Liochthonius alpestris, Liochthonius brevis, Liochthonius evansi, Liochthonius horridus, Liochthonius laetepictus, Liochthonius perfusorius, Liochthonius sellnicki, Malaconothrus gracilis, Medioppia loksai, Medioppia obsoleta, Medioppia subpectinata, Melanozetes meridianus, Melanozetes mollicomus, Micreremus brevipes, Microppia minus, Microtritia minima, Minunthozetes semirufus, Mixochthonius pilososetosus, Nanhermannia coronata, Nanhermannia elegantula, Neobrachychthonius marginatus, Neoliochthonius piluliferus, Nothrus anauniensis, Nothrus silvestris, Odontocepheus elongatus, Ophidiotrichus connexus, Oppiella nova, Oribatella calcarata, Oribatula tibialis, Palaeacarus hystricinus, Parachipteria willmanni, Phthiracarus sp.1, Platynothrus peltifer, Porobelba spinosa, Protoribotritia oligotricha, Punctoribates punctum, Quadroppia monstruosa, Quadroppia quadricarinata, Rhysotritia ardua, Rhysotritia duplicata, Sellnickochthonius immaculatus, Sellnickochthonius jacoti, Sellnickochthonius rostratus, Sellnickochthonius suecicus, Sellnickochthonius zelawaiensis, Scheloribates laevigatus, Scheloribates latipes, Spatiodamaeus verticilipes, Steganacarus applicatus, Suctobelba aliena, Suctobelba regia, Suctobelba reticulata, Suctobelba trigona, Suctobelbella falcata, Suctobelbella nasalis, Suctobelbella palustris, Suctobelbella sarekensis, Suctobelbella similis, Suctobelbella subcornigera, Suctobelbella subtrigona, Tectocepheus velatus, Trichoribates trimaculatus, Verachthonius laticeps, Xenillus tegeocranus, Zygoribatula exilis

Lumbricidae

Dendrobaena illyrica, Dendrobaena vejdovskyi, Dendrodrilus rubidus, Lumbricus rubellus, Octolasion lacteum, Octolasion tyrtaeum

Diplopoda

Craspedosoma rawlinsi, Haasea flavescens, Leptoiulus trilobatus , Mycogona germanica, Polydesmus complanatus, Polydesmus denticulatus, Unciger foetidus, Unciger transsilvanicus

Oniscidea

Trichoniscus pusillus

Ferdinandova soutěska

Oribatida

Adoristes ovatus, Achipteria coleoptrata, Allosuctobelba grandis, Atropacarus striculus, Belba pseudocorynopus, Berniniella bicarinata, Berniniella sigma, Brachychochthonius rostratus, Caleremaeus monilipes, Carabodes areolatus, Carabodes femoralis, Carabodes marginatus, Carabodes ornatus, Carabodes subarcticus, Ceratozetes gracilis, Conchogneta dalecarlica, Edwardzetes edwardsii, Eniochthonius minutissimus, Euphthiracarus monodactylus, Euzetes globulus, Fuscozetes setosus, Galumna lanceata, Gustavia microcephala, Hemileius initialis, Hermannia gibba, Hypochthonius rufulus, Chamobates borealis, Chamobates cuspidatus, Chamobates voigtsi, Lauroppia falcata, Liacarus coracinus, Liebstadia similis, Liochthonius perfusorius, Liochthonius sellnicki, Malaconothrus gracilis, Medioppia subpectinata, Metabelba pulverosa, Microppia minus, Microtritia minima, Minunthozetes semirufus, Nanhermannia coronata, Neoribates aurantiacus, Nothrus silvestris, Oppiella nova, Oribatella quadricornuta, Oribatula tibialis, Pantelozetes paolii, Parachipteria willmanni, Phthiracarus sp.1, Platynothrus peltifer, Porobelba spinosa, Punctoribates punctum, Quadroppia quadricarinata, Rhysotritia duplicata, Spatiodamaeus verticilipes, Steganacarus applicatus, Suctobelba reticulata, Suctobelba trigona, Suctobelbella sarekensis, Suctobelbella subcornigera, Tectocepheus velatus, Trhypochthonius cladonicola, Xenillus tegeocranus

Lumbricidae

Allolobophora eiseni, Aporrectodea caliginosa, Aporrectodea rosea, Dendrobaena illyrica, Dendrobaena octaedra, Dendrobaena vejdovskyi, Dendrodrilus rubidus, Dendrodrilus subrubicundus, Eiseniella tetraedra, Kritodrilus auriculatus, Lumbricus rubellus, Octolasion tyrtaeum

Diplopoda

Craspedosoma rawlinsi, Enantiulus nanus, Haasea germanica , Julus scandinavius , Leptoiulus proximus, Leptoiulus trilobatus , Megaphyllum projectum, Mycogona germanica, Nemasoma varicorne, Ochogona caroli, Polydesmus complanatus, Polyzonium germanicum, Unciger transsilvanicus

Oniscidea

Hyloniscus riparius, Ligidium hypnorum, Porcellium collicola, Porcellium conspersum, Protracheoniscus politus, Trichoniscus pusillus

Zlé díry

Oribatida

Adoristes ovatus, Allosuctobelba grandis, Atropacarus striculus, Belba pseudocorynopus, Berniniella sigma, Brachychochthonius honestus, Brachychochthonius jacoti, Camisia spinifer, Carabodes areolatus , Carabodes marginatus, Carabodes subarcticus, Carabodes tenuis, Cultroribula bicultrata, Damaeobelba minutissima, Edwardzetes edwardsii , Eniochthonius minutissimus, Eupelops plicatus, Fuscozetes setosus, Hemileius initialis, Hermannia gibba, Hypochthonius rufulus, Chamobates borealis, Lauroppia falcata, Lauroppia neerlandica , Malaconothrus gracilis, Medioppia subpectinata, Melanozetes meridianus, Microppia minus, Microtritia minima, Nanhermannia coronata, Nothrus silvestris, Oppiella nova, Oribatula tibialis, Parachipteria willmanni , Phthiracarus sp.1, Platynothrus peltifer, Porobelba spinosa, Punctoribates punctum , Quadroppia monstruosa, Quadroppia quadricarinata, Rhysotritia ardua, Rhysotritia duplicata, Sellnickochthonius jacoti , Suctobelba regia, Suctobelba reticulata, Suctobelba trigona, Suctobelbella falcata, Suctobelbella longirostris, Suctobelbella nasalis, Suctobelbella palustrism Suctobelbella sarekensis, Suctobelbella similis, Suctobelbella subcornigera, Suctobelbella subtrigona, Tectocepheus velatus, Trimalaconothrus glaber

Lumbricidae

Dendrobaena illyrica, Dendrobaena vejdovskyi

Diplopoda

Mycogona germanica, Ochogona caroli, Polyxenus lagurus

Oniscidea

Trachelipus ratzeburgii, Trichoniscus pusillus

Tichá soutěska

Oribatida

Atropacarus striculus, Autogneta longilamellata, Belba pseudocorynopus, Berniniella bicarinata, Caleremaeus monilipes, Carabodes labyrinthicus, Carabodes rugosior, Carabodes tenuis, Ceratozetes gracilis, Conchogneta dalecarlica, Cultroribula bicultrata, Damaeobelba minutissima, Eulohmannia ribagai, Eupelops torulosus, Euphthiracarus monodactylus, Euzetes globulus, Fuscozetes setosus, Galumna lanceata, Hemileius initialis, Hermannia gibba, Hypochthonius rufulus, Chamobates birulai, Chamobates borealis, Chamobates cuspidatus, Chamobates voigtsi, Lauroppia falcata, Liebstadia longior, Liebstadia similis, Liebstadia willmanni, Malaconothrus gracilis, Medioppia subpectinata, Melanozetes meridianus, Microtritia minima, Nanhermannia coronata, Nothrus silvestris, Ophidiotrichus connexus, Oppiella nova, Pantelozetes paolii, Parachipteria willmanni, Phthiracarus sp.1, Platynothrus peltifer, Porobelba spinosa, Punctoribates punctum, Quadroppia monstruosa, Rhysotritia duplicata, Sellnickochthonius suecicus, Steganacarus applicatus, Suctobelba trigona, Suctobelbella acutidens, Suctobelbella arcana, Suctobelbella falcata, Suctobelbella longirostris, Suctobelbella nasalis, Suctobelbella similis, Suctobelbella subcornigera, Tectocepheus knullei, Tectocepheus minor, Tectocepheus velatus, Trimalaconothrus (Tyrphonothrus) glaber

Lumbricidae

Dendrobaena attemsi, Dendrobaena octaedra, Dendrobaena vejdovskyi, Dendrodrilus rubidus, Dendrodrilus subrubicundus, Kritodrilus auriculatus

Diplopoda

Craspedosoma rawlinsi, Leptoiulus trilobatus, Mycogona germanica, Ochogona caroli, Polydesmus denticulatus, Polyzonium germanicum, Unciger foetidus, Unciger transsilvanicus

Oniscidea

Hyloniscus riparius, Ligidium hypnorum, Porcellium conspersum, Protracheoniscus politus, Trachelipus ratzeburgii, Trichoniscus pusillus

Babylon

Oribatida

Atropacarus striculus, Banksinoma lanceolata, Belba compta, Berniniella sigma, Brachychthonius impressus, Carabodes areolatus, Carabodes coriaceus, Carabodes marginatus, Carabodes tenuis, Ceratoppia sexpilosa, Edwardzetes edwardsii, Eniochthonius minutissimus, Eupelops plicatus, Gustavia microcephala, Hemileius initialis, Hermannia gibba, Hypochthonius rufulus, Chamobates borealis, Lauroppia neerlandica, Liebstadia similis, Liochthonius brevis, Liochthonius hystricinus, Atropacarus striculus, Banksinoma lanceolata, Belba compta, Berniniella sigma, Brachychthonius impressus, Carabodes areolatus, Carabodes coriaceus, Carabodes marginatus, Carabodes tenuis, Ceratoppia sexpilosa, Edwardzetes edwardsii, Eniochthonius minutissimus, Eupelops plicatus, Gustavia microcephala, Hemileius initialis, Hermannia gibba, Hypochthonius rufulus, Chamobates borealis, Lauroppia neerlandica, Liebstadia similis, Liochthonius brevis, Liochthonius hystricinus, Liochthonius perfusorius, Liochthonius sellnicki, Malaconothrus gracilis, Medioppia subpectinata, Nanhermannia coronata, Oppiella nova, Phthiracarus sp.1, Platynothrus peltifer, Quadroppia monstruosa, Quadroppia quadricarinata, Rhysotritia ardua, Sellnickochthonius jacoti, Sellnickochthonius suecicus, Steganacarus applicatus, Suctobelba trigona, Suctobelbella falcata, Suctobelbella longirostris, Suctobelbella sarekensis, Suctobelbella subcornigera, Suctobelbella subtrigona, Tectocepheus velatus, Liochthonius perfusorius, Liochthonius sellnicki, Malaconothrus gracilis, Medioppia subpectinata, Nanhermannia coronata, Oppiella nova, Phthiracarus sp.1, Platynothrus peltifer, Quadroppia monstruosa, Quadroppia quadricarinata, Rhysotritia ardua, Sellnickochthonius jacoti, Sellnickochthonius suecicus, Steganacarus applicatus, Suctobelba trigona, Suctobelbella falcata, Suctobelbella longirostris, Suctobelbella sarekensis, Suctobelbella subcornigera, Suctobelbella subtrigona, Tectocepheus velatus

Lumbricidae

Allolobophora eiseni, Dendrobaena attemsi, Dendrobaena vejdovskyi

Diplopoda

Mycogona germanica

Dolský mlýn

Oribatida
Adoristes ovatus, Achipteria coleoptrata , Atropacarus striculus, Belba pseudocorynopus , Berniniella bicarinata, Caleremaeus monilipes , Camisia spinifer, Carabodes femoralis, Carabodes labyrinthicus, Carabodes marginatus, Dissorhina ornata, Dissorhina signata, Edwardzetes edwardsii, Eniochthonius minutissimus, Eupelops plicatus, Eupelops torulosus, Hemileius initialis, Heminothrus targionii, Hermannia gibba, Chamobates (Xiphobates) voigtsi, Chamobates borealis, Lauroppia falcata, Liebstadia similis, Liochthonius brevis, Liochthonius perfusorius, Malaconothrus gracilis, Medioppia subpectinata, Melanozetes meridianus, Micorppia minus, Nothrus silvestris, Oppiella nova , Phthiracarus sp., Platynothrus peltifer, Rhysotritia ardua, Rhysotritia duplicata, Steganacarus applicatus, Suctobelbella sarekensis, Suctobelbella similis, Suctobelbella subcornigera, Tectocepheus velatus

Lumbricidae
Dendrobaena octaedra

Diplopoda
Mycogona germanica
Unciger transsilvanicus

Oniscidea
Trichoniscus pusillus

Pryskyřičný důl

Oribatida

Acrogalumna longiplumma, Adoristes ovatus, Atropacarus striculus, Banksinoma lanceolata, Berniniella bicarinata, Caleremaeus monilipes, Carabodes labyrinthicus, Carabodes marginatus, Carabodes subarcticus, Carabodes tenuis, Ceratoppia sexpilosa, Ceratozetella thienemanni, Damaeobelba minutissima, Edwardzetes edwardsii, Eobrachychthonius borealis, Eulohmannia ribagai, Eupelops plicatus, Euphthiracarus cribrarius, Euphthiracarus monodactylus, Furcoribula furcillata, Fuscozetes setosus, Hemileius initialis, Hypochthonius rufulus, Chamobates borealis, Lauroppia falcata, Liacarus coracinus, Liebstadia similis, Liochthonius horridus, Liochthonius perfusorius, Malaconothrus gracilis, Medioppia subpectinata, Microtritia minima, Nanhermannia coronata, Nothrus silvestris, Oppiella nova, Pantelozetes paolii, Parachipteria willmanni, Platynothrus peltifer, Rhysotritia ardua, Rhysotritia duplicata, Sellnickochthonius jacoti, Scheloribates laevigatus, Steganacarus applicatus, Suctobelba trigona, Suctobelbella longirostris, Suctobelbella palustris, Suctobelbella sarekensis, Suctobelbella subcornigera, Tectocepheus velatus, Trhypochthonius cladonicola, Trimalaconothrus (Tyrphonothrus) glaber, Zygoribatula exilis

Lumbricidae

Allolobophora eiseni, Dendrobaena illyrica

Diplopoda

Haasea flavescens
Mycogona germanica

Soorgrund

Oribatida

Adamaeus onustus, Achipteria coleoptrata, Atropacarus striculus, Belba pseudocorynopus, Berniniella bicarinata, Berniniella sigma, Carabodes labyrinthicus, Ceratopia quadridentata, Ceratozetes gracilis, Conchogneta dalecarlica, Ctenobelba pectinigera, Cultroribula bicultrata, Dissorhina ornata, Eulohmannia ribagai, Eupelops plicatus, Euphthiracarus monodactylus, Euzetes globulus, Galumna elimata, Gustavia microcephala, Hemileius initialis, Hermannia gibba, Hypochthonius rufulus, Chamobates voigtsi, Chamobates borealis, Chamobates cuspidatus, Lauroppia falcata, Lauroppia neerlandica, Malaconothrus gracilis, Medioppia subpectinata, Melanozetes mollicomus, Metabelba sp., Microppia minus, Minunthozetes semirufus, Nanhermannia coronata, Oppiella nova, Oribatella quadricornuta, Pantelozetes paolii, Phthiracarus sp.1, Pilogalumna tenuiclava, Platynothrus peltifer, Porobelba spinosa, Quadroppia monstruosa, Quadroppia quadricarinata, Rhysotritia duplicata, Steganacarus applicatus, Suctobelba regia, Suctobelba trigona, Suctobelbella nasalis, Suctobelbella sarekensis, Suctobelbella subcornigera, Tectocepheus velatus

Střelecká rokle

Oribatida

Adelphacarus sellnicki, Adoristes ovatus, Allosuctobelba grandis, Atropacarus striculus, Belba pseudocorynopus, Berniniella sigma, Caleremaeus monilipes, Camisia biurus, Carabodes areolatus, Carabodes labyrinthicus, Carabodes ornatus, Damaeobelba minutissima, Dissorhina ornata, Eniochthonius minutissimus, Eupelops torulosus, Euphthiracarus cribrarius, Euphthiracarus monodactylus, Fossonothrus laciniatus, Fuscozetes setosus, Galumna lanceata, Hemileius initialis, Heminothrus longisetosus, Hypochthonius rufulus, Chamobates voigtsi, Chamobates borealis, Lauroppia falcata, Licneremaeus licnophorus, Liochthonius brevis, Malaconothrus gracilis, Malaconothrus monodactylus, Medioppia subpectinata, Melanozetes mollicomus, Metabelba sp., Microppia minus, Microtritia minima, Nothrus silvestris, Oppiella nova, Oribatula tibialis, Parhypochthonius aphidinus, Platynothrus peltifer, Porobelba spinosa, Quadroppia quadricarinata, Rhysotritia duplicata, Sellnickochthonius zelawaiensis, Scheloribates latipes, Suctobelba trigona, Suctobelbella falcata, Suctobelbella longirostris, Suctobelbella sarekensis, Suctobelbella similis, Suctobelbella subcornigera, Suctobelbella subtrigona, Tectocepheus velatus

Černá brána

Oribatida

Adoristes ovatus, Atropacarus striculus, Belba compta, Belba pseudocorynopus , Berniniella bicarinata, Berniniella sigma, Carabodes labyrinthicus, Carabodes marginatus, Carabodes ornatus, Carabodes rugosior, Carabodes tenuis, Ceratoppia sexpilosa, Cultroribula bicultrata, Damaeobelba minutissima, Dissorhina ornata, Edwardzetes edwardsii, Eniochthonius minutissimus, Eupelops hirtus, Eupelops torulosus, Euphthiracarus cribrarius, Globozetes longipilus, Heminothrus longisetosus, Hypochthonius rufulus, Chamobates borealis, Lauroppia neerlandica, Liebstadia longior, Liochthonius brevis, Liochthonius perfusorius, Malaconothrus gracilis, Medioppia subpectinata, Microppia minus, Microtritia minima, Nanhermannia coronata, Nothrus silvestris, Oppiella nova, Phthiracarus sp.1, Platyliodes scaliger, Platynothrus peltifer, Quadroppia monstruosa, Quadroppia quadricarinata, Rhysotritia duplicata, Sellnickochthonius zelawaiensis, Suctobelba regia, Suctobelba trigona, Suctobelbella falcata, Suctobelbella longirostris, Suctobelbella sarekensis, Suctobelbella similis, Suctobelbella subcornigera, Suctobelbella subtrigona, Tectocepheus velatus

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Kachní potok gorge after flooding

Soil mesofauna sampling

Sampling material from pitfall traps

Soil sampling

Sampling in the Hauschengrund gorge

Collecting samples for soil macrofauna

Sampling in the Střelecká rokle gorge

The Soorgrund gorge