

Contribution to the knowledge of the oribatid mite fauna (Acari: Oribatida) of peat bogs in Bohemian Forest

Josef Starý

*Institute of Soil Biology, Academy of Sciences of the Czech Republic, Na sádkách 7, CZ-37005, České Budějovice, Czech Republic
jstary@upb.cas.cz*

Abstract

The oribatid mite fauna of five peat bogs: Luzenská Slat' peat bog, Rokytická Slat' peat bog, Novohůrecká Slat' peat bog, Chalupská Slat' peat bog and Malá Niva peat bog, was studied. In total 129 oribatid species belonging to 83 genera and 41 families were identified in the material of 9101 oribatid specimens from 69 qualitative soil samples. The records of two species *Sellnickochthonius honestus* Moritz, 1976 and *Trima-laconothrus vietsi* Willmann, 1925 are new for the fauna of the Czech Republic. The record of *Lepidozetes singularis* Berlese, 1910 is new for the fauna of Bohemia and records of 29 species are new for the Bohemian Forest. In total 55 oribatid species were found in the Luzenská Slat' peat bog, 86 species in the Roklanská Slat' peat bog, 68 species in the Novohůrecká Slat' peat bog, 92 species in the Chalupská Slat' peat bog and 66 oribatid species in the Malá Niva peat bog. Faunistically important oribatid species were characterised. PCA ordination analysis of oribatid mite communities from important biochores of studied peat bogs and its species composition was presented.

Key words: soil fauna, microarthropods, Acari, Oribatida, faunistics, South Bohemia, peat bogs, Bohemian Forest

INTRODUCTION

The Bohemian Forest belongs, in the framework of Central Europe, to areas with most abundant occurrence of different types of peat bogs, which appear to be the most important biotops protected in the Šumava National Park. They represent the rest of tundra, which had covered large part of Central Europe during the glacial periods. They are refugium of rare boreoalpine relicts i.e. species with continuous distribution in the northernmost areas of Palaearctic Region and in alpine and subalpine zones of high mountains of this territory. Hygrophilous species are an important component of community species composition and reflect comparatively distinctive microclimatic conditions of peat bogs. Some of them are tyrophobionts living exclusively in this habitat type.

The oribatid mite investigation has a comparatively long tradition in the Bohemian Forest. ŠTORKÁN (1925) was the first who studied oribatids in this area and found five oribatid species in Roklan and one species from the localities Plechý and Želňava. KUNST (1968) has recorded three species from the large peat bog Jezerní Slat'. STARÝ (1982, 1988) has studied oribatid mite communities in detail in the five peat bogs and recorded 68 oribatid species from the locality Pěkná peat bog, 76 ones from Mrtvý Luh peat bog, 81 ones from Chalupská Slat' peat bog, 60 ones from Jezerní Slat' peat bog, and 24 ones from Tříjezerní Slat' peat bog.

Up to now, 174 oribatid species were found in Bohemian Forest and 597 oribatid species were recorded from the territory of the Czech Republic (STARÝ 2000a, b).

MATERIAL AND METHODS

Three of the studied peat bogs, Luzenská Slat' peat bog, Rokytská Slat' peat bog, and Novohůrecká Slat' peat bog belong to the type of the ombrogenous high bogs situated on Kvilidské and Kochánovské Pláně plateaus. The remaining two localities Chalupská Slat' peat bog and Malá Niva peat bog are alluvial peat bogs situated in lower altitude in the valley of the Upper Vltava River. A total of 69 quantitative soil samples (size 100 cm²) were collected in the important habitats of all studied peat bogs. Soil samples were transported to the laboratory, where soil mites and other mesoedafon representatives were extracted for five days on modified Berlese-Tullgren funnels at a temperature of 35 °C. Oribatid mites were cleared in temporary microscopic slides with 80% lactic acid and determined on species level and then transferred to the glycerol. Documented material was stored in the comparative oribatid collection in ISB ASCR in České Budějovice.

The principal component analysis (PCA) based on the Sørensen index of species similarity was used for comparison of collected soil sample species composition of different habitats and biocoenoses of the studied localities and for their estimation of heterogeneity (SYN-TAX 5.02), (PODANI 1994).

STUDIED LOCALITIES AND SAMPLES DESCRIPTION

Luzenská Slat' peat bog

High peat bog situated 7 km south of Modrava in the Luzenský Potok valley in altitude 1150 m. Area of the locality is 30 ha, cubic content of peat is 1 million m³. Central part of locality is overgrown by dwarf pine (*Pinus × pseudopumilio*), marginal parts partly by waterlogged spruce forest, partly by wet meadow vegetation. Date of sample collection: 16th July 2001.

1) Bog moss (*Sphagnum magellanicum*) on the raised cop of peat in plant community *Trichophoro cespitosi-Sphagnetum compacti*. 2) Bog moss (*Sphagnum magellanicum*) on the raised cop of peat in plant community *Trichophoro cespitosi-Sphagnetum compacti*. 3) Rhizosphere of *Trichophorum cespitosum* in plant community *Trichophoro cespitosi-Sphagnetum compacti*. 4) Peat from waterless slough in plant community *Trichophoro cespitosi-Sphagnetum compacti*. 5) Peat from waterless slough in plant community *Trichophoro cespitosi-Sphagnetum compacti*. 6) Lichen (*Hypogymnia bitteri*) from the stem of Norway spruce (*Picea abies*) in plant community *Trichophoro cespitosi-Sphagnetum compacti*. 7) Sample of lichen (*Hypogymnia bitteri*) from the stem of Norway spruce (*Picea abies*) in plant community *Trichophoro cespitosi-Sphagnetum compacti*. 8) Dwarf pine (*Pinus × pseudopumilio*) litter in plant community *Trichophoro cespitosi-Sphagnetum compacti*. 9) Moss (*Polytrichum commune*) on the raised cop of peat in plant community *Trichophoro cespitosi-Sphagnetum compacti*. 10) Mud sedge rhizosphere (*Carex magellanica*) and bog moss (*Sphagnum fallax*) in plant community *Trichophoro cespitosi-Sphagnetum compacti*. 11) Wet bog moss (*Sphagnum maius*) from the slough in plant community *Trichophoro cespitosi-Sphagnetum compacti*. 12) Wet moss (*Drepanocladus fluitans*) with sundew (*Drosera anglica*) from the slough in plant community *Trichophoro cespitosi-Sphagnetum compacti*.

Rokytská Slat' peat bog

High peat bog situated 5 km West of Modrava in altitude 1100 m, protected since 1933. Area of the locality is 142.5 ha, cubic content of peat is 3 032 724 m³ and maximal peat thickness is 233 cm. Altogether 69 peat lakes is situated on this locality. Date of sample collection: 17th July 2001.

13) Norway spruce (*Picea abies*) litter in waterlogged spruce forest with billberry (*Vaccinium myrtillus*) and

blueberry (*Vaccinium vitis-idea*) in marginal parts of the peat bog. 14) Brown decaying wood of birch stump of birch (*Betula carpatica*) in waterlogged spruce forest. 15) Bog moss (*Sphagnum russowii*) and rhizosphere of bog whortleberry (*Vaccinium uliginosum*) in central parts of lagg with growth of dwarf pine (*Pinus* × *pseudopumilio*). 16) Dwarf pine (*Pinus* × *pseudopumilio*) litter in central part of the lagg in growth of low dwarf pine (*Pinus* × *pseudopumilio*) with dominant whortleberry (*Vaccinium uliginosum*), niggerhead (*Eriophorum vaginatum*), and moss (*Aulacomnium palustre*) in the central parts of lagg. 17) Niggerhead (*Eriophorum vaginatum*), rhizosphere in central groveless parts with dominant niggerhead (*Eriophorum vaginatum*), bog mosses (*Sphagnum cuspidatum*, *S. magellanicum*, and *S. fuscum*). 18) Submerged bog moss (*Sphagnum maius*) from the slough in central groveless parts with dominant niggerhead (*Eriophorum vaginatum*), bog mosses (*Sphagnum cuspidatum*, *S. magellanicum*, and *S. fuscum*). 19) Bog moss (*Sphagnum magellanicum*) and rhizosphere of whortleberry (*Vaccinium uliginosum*), in central groveless parts with dominant niggerhead (*Eriophorum vaginatum*), bog mosses (*Sphagnum cuspidatum*, *S. magellanicum*, and *S. fuscum*). 20) Moss (*Polytrichum strictum*) from peat cop in central groveless parts with dominant niggerhead (*Eriophorum vaginatum*), bog mosses (*Sphagnum cuspidatum*, *S. magellanicum*, and *S. fuscum*). 21) Submerged bog moss (*Sphagnum maius*) from the slough in central groveless parts with dominant niggerhead (*Eriophorum vaginatum*), bog mosses (*Sphagnum cuspidatum*, *S. magellanicum*, and *S. fuscum*). 22) Wet rhizosphere of sundew (*Drosera rotundifolia*) in central groveless parts with dominant niggerhead (*Eriophorum vaginatum*), bog mosses (*Sphagnum cuspidatum*, *S. magellanicum*, and *S. fuscum*). 23) Lichen (*Cladonia crispata*) on the peat in central groveless parts with dominant niggerhead (*Eriophorum vaginatum*), bog mosses (*Sphagnum cuspidatum*, *S. magellanicum*, and *S. fuscum*). 24) Wet bog moss (*Sphagnum russowii*) in transition zone between growth of dwarf pine (*Pinus* × *pseudopumilio*) and waterlogged spruce forest. 25) Lichen (*Hypogymnia physodes*) from dead dried spruce trees (*Picea abies*) in transition zone between growth of dwarf pine (*Pinus* × *pseudopumilio*) and waterlogged spruce forest. 26) Bilberry (*Vaccinium myrtillus*) litter in growth of dwarf pine (*Pinus* × *pseudopumilio*). 27) Soil and rhizosphere in ravine below peat bog with growth of dwarf pine (*Betula nana*), whortleberry (*Vaccinium uliginosum*), cow-wheat (*Melampyrum pratense*), and mosses (*Sphagnum flexuosum*, *Polytrichum strictum*, *Pleurozium schreiberi*). 28) Wet bog moss (*Sphagnum fallax*) from the slough in phytocoenosis *Cariceetum rostratae-Sphagnetum recurvii*.

Novohůrecká Slat' peat bog

Peat bog situated near Sklářský Potok stream, 8 km West of Hartmanice in altitude 872 m. Locality area is 62.02 ha, peat cubic content is 1 055 000 m³. Date of sample collection: 17th July 2001.

29) Norway spruce (*Picea abies*) litter in the waterlogged spruce forest in marginal part of peat bog. 30) Bog moss (*Sphagnum fallax*) and rhizosphere of sedge (*Carex rostrata*, *Calamagrostis villosa*). 31) Soil with lichens (*Cladonia* sp.) on bared roatage of dwarf pine windthrow in marginal parts with dead stems of dwarf pine (*Pinus rotundata*). 32) Norway spruce (*Picea abies*) litter with bog moss (*Sphagnum magellanicum*) and rhizosphere of whortleberry (*Vaccinium uliginosum*) in waterlogged spruce forest in marginal parts of peat bog. 33) Bog moss (*Sphagnum fallax*) with rhizosphere of niggerhead (*Eriophorum vaginatum*), whortleberry (*Vaccinium uliginosum*), bilberry (*Vaccinium myrtillus*), and mosses (*Sphagnum magellanicum* and *Pleurozium schreiberi*). 34) Lichens (*Hypogymnia physodes*) from the dwarf pine (*Pinus rotundata*) bark in growth of dwarf pine (*Pinus rotundata*). 35) Soil and peat in the oldest growth of dwarf pine (*Pinus rotundata*) with niggerhead (*Eriophorum vaginatum*), whortleberry (*Vaccinium uliginosum*), bilberry (*Vaccinium myrtillus*), and mosses (*Sphagnum magellanicum* and *Pleurozium schreiberi*). 36) Brown and white decaying wood lying stem of dwarf pine (*Pinus rotundata*) in the oldest growth of dwarf pine (*Pinus rotundata*) with niggerhead (*Eriophorum vaginatum*), whortleberry (*Vaccinium uliginosum*), bilberry (*Vaccinium myrtillus*), and mosses (*Sphagnum magellanicum* and *Pleurozium schreiberi*). 37) Dwarf pine (*Pinus rotundata*) litter in the oldest growth of dwarf pine (*Pinus rotundata*) with niggerhead (*Eriophorum vaginatum*), whortleberry (*Vaccinium uliginosum*), bilberry (*Vaccinium myrtillus*), and mosses (*Sphagnum magellanicum* and *Pleurozium schreiberi*). 38) Bog moss (*Sphagnum fuscum*) and moss (*Polytrichum strictum*) from the peat cop near dwarf pine stem in the zone with lower growth of dwarf pine (*Pinus rotundata*). 39) Wet bog moss (*Sphagnum flexuosum*) with rhizosphere of niggerhead (*Eriophorum vaginatum*) and *Oxycoccus palustris* in the zone with lower growth of dwarf pine (*Pinus rotundata*). 40) Bog moss (*Sphagnum fuscum*) and moss (*Polytrichum strictum*) from the peat cop near dwarf pine stem in the zone with lower growth of dwarf pine (*Pinus rotundata*).

Chalupská Slat' peat bog

Peat bog situated 1 km North of Borová Lada in altitude 878–920 m. Area of peat bog is 136.9 ha, peat cubic content is 2 341 000 m³, and maximal peat thickness is 7 m. The large

peat lake with area 1.3 ha is situated in the central part of bog. The western part of locality was injured by turf digging. Date of sample collection: 23th July 2001.

41) Rhizosphere of niggerhead (*Eriophorum vaginatum*), common cotton-grass (*Eriophorum angustifolium*), and bog moss (*Sphagnum fallax*) near central peat bog lake. 42) Rhizosphere of common cotton-grass (*Eriophorum angustifolium*), niggerhead (*Eriophorum vaginatum*), sundew (*Drosera rotundifolia*), and bog moss (*Sphagnum fallax*) near central peat bog lake. 43) Rhizosphere of crowberry (*Empetrum hermaphroditum*), bog whortleberry (*Vaccinium uliginosum*), niggerhead (*Eriophorum vaginatum*), cow-wheat (*Melampyrum pratense*), and bog moss (*Sphagnum fallax*) near central peat bog lake. 44) Rhizosphere of bog whortleberry (*Vaccinium uliginosum*) and mosses (*Pleurozium schreiberi*, *Sphagnum flexuosum*, and *Sphagnum magellanicum*) in birch forest *Betulion pubescentis*. 45) Lichen (*Hypogymnia physodes*) from bark and branches of birch (*Betula pubescens*), Norway spruce (*Picea abies*), and pine (*Pinus sylvestris*) in birch forest *Betulion pubescentis*. 46) Norway spruce (*Picea abies*) litter and rhizosphere of bog whortleberry (*Vaccinium uliginosum*), bilberry (*Vaccinium myrtillus*), blueberry (*Vaccinium myrtillus*), and moss (*Dicranum scoparium*) in waterlogged struce forest. 47) Black decaying wood of moder stump of Norway spruce with lichen s (*Cladonia* sp.), in waterlogged spruce forest. 48) Norway spruce (*Picea abies*), soil and moss (*Dicranum scoparium*) in waterlogged spruce forest. 49) Dwarf pine (*Pinus × pseudopumilio*) litter in the growth of dwarf pine (*Pinus × pseudopumilio*) and birch (*Betula pubescens*), with blueberry (*Vaccinium vitis-idea*), bilberry (*Vaccinium myrtillus*), crowberry (*Oxycoccus palustris*), and mosses (*Pleurozium schreiberi*, *Sphagnum flexuosum*, and *Sphagnum magellanicum*). 50) Rhizosphere in growth of sedge (*Carex rostrata*), common cotton-grass (*Eriophorum angustifolium*). 51) Lichens (*Hypogymnia physodes*) from branches and stems of Norway spruce (*Picea abies*) and dwarf bog pine (*Pinus × pseudopumilio*), in the growth of dwarf pine (*Pinus × pseudopumilio*) and birch (*Betula pubescens*), with blueberry (*Vaccinium vitis-idea*), bilberry (*Vaccinium myrtillus*), *Oxycoccus palustris*, and mosses (*Pleurozium schreiberi*, *Sphagnum flexuosum*, and *Sphagnum magellanicum*). 52) Mosses and lichens (*Cladonia* sp.) from dwarf pine (*Pinus × pseudopumilio*) stem in the growth of dwarf pine (*Pinus × pseudopumilio*) and birch (*Betula pubescens*), with blueberry (*Vaccinium vitis-idea*), bilberry (*Vaccinium myrtillus*), crowberry (*Oxycoccus palustris*), and mosses (*Pleurozium schreiberi*, *Sphagnum flexuosum*, and *Sphagnum magellanicum*). 53) Rhizosphere in the growth of pine (*Pinus sylvestris*), with heather (*Calluna vulgaris*) and *Andromeda polifolia*. 54) Rhizosphere of crowberry (*Oxycoccus palustris*), and mosses (*Polytrichum strictum* and *Sphagnum fuscum*) in the growth of pine tree (*Pinus sylvestris*), with heather (*Calluna vulgaris*). 55) Wet sedge (*Carex magellanica*) rhizosphere near pool in NE part of the bog. 56) Rhizosphere from fenny meadow with dominant sedge (*Carex nigra*, *Carex rostrata*), bedstraw (*Galium palustre*), kingcup (*Caltha palustris*), and marsh thistle (*Cirsium palustre*) in NE margin of the bog. 57) Crowberry (*Oxycoccus palustris*) rhizosphere, and mosses (*Polytrichum strictum* and *Sphagnum fuscum*) in the growth of pine tree (*Pinus sylvestris*), with heather (*Calluna vulgaris*).

Malá Niva peat bog

Alluvial peat bog situated on right riverside of the Upper Vltava River, 6 km West of Volary, in altitude 746–760 m. Area of locality is 90 ha, peat cubic content is 2 550 000 m³, and maximal peat thickness is 640 cm. Date of sample collection: 24th July 2001.

58) Bog moss (*Sphagnum giergensohni*) in waterlogged lagg spruce forest dominated by Norway spruce (*Picea abies*), pine (*Pinus sylvestris*), and birch (*Betula pubescens*). 59) Sedge (*Carex lasiocarpa*) rhizosphere from the peat cop in waterlogged lagg spruce forest dominated by Norway spruce (*Picea abies*), pine (*Pinus sylvestris*), and birch (*Betula pubescens*). 60) Wet bog moss (*Sphagnum flexuosum*) from the slough in waterlogged lagg spruce forest dominated by Norway spruce (*Picea abies*), pine (*Pinus sylvestris*), and birch (*Betula pubescens*). 61) Bilberry (*Vaccinium myrtillus*) litter and rhizosphere in the lagg open woodland with birch (*Betula pubescens*), dwarf pine (*Pinus rotundata*), and Norway spruce (*Picea abies*). 62) Lichens (*Hypogymnia physodes*) from stems of dwarf pine (*Pinus rotundata*) in the lagg open woodland with birch (*Betula pubescens*), dwarf pine (*Pinus rotundata*), and Norway spruce (*Picea abies*). 63) Reddish decaying wood of Norway spruce (*Picea abies*) overgrown by lichen (*Cladonia* sp.) in the lagg open woodland with birch (*Betula pubescens*), dwarf pine (*Pinus rotundata*), and Norway spruce (*Picea abies*). 64) Soil and lichens (*Cladonia rhangiferrina*) in central part of peat bog with open growths of dwarf pine (*Pinus rotundata*). 65) Rhizosphere of heather (*Calluna vulgaris*) on the top of peat cop in central part of peat bog with open growths of dwarf pine (*Pinus rotundata*). 66) Moss (*Polytrichum strictum*) from peat cop in central part of peat bog with open growths of dwarf pine (*Pinus rotundata*). 67) Wet bog moss (*Sphagnum flexuosum*) from the slough in central part of peat bog with open growths of dwarf pine (*Pinus rotundata*). 68) Rhizosphere of niggerhead (*Eriophorum vaginatum*) from the slough in central part of peat bog with open growths of dwarf pine (*Pinus rotundata*). 69) Lichens (*Hypogymnia physodes*) from dwarf pine (*Pinus*

rotundata) branches in open part of the peat bog with sparse growth of dwarf pine (*Pinus rotundata*).

TAXONOMIC LIST OF IDENTIFIED ORIBATID SPECIES

In total 130 oribatid species belonging to 83 genera and 41 families were identified in the material of 9101 oribatid specimens from 69 qualitative soil samples. The oribatid mite system used in this list was derived from STARÝ'S (2000a, b) papers. Numbers stated beside recorded oribatid species are identical with those used in the list of collected samples. Species marked by * are new records for oribatid fauna of Czech Republic, ** new in the fauna of Bohemia and *** new in the fauna of the Bohemian Forest. Two recorded species are new for the oribatid mite fauna of the Czech Republic, one species is new for the fauna of Bohemia and 29 species are new for the fauna of the Bohemian Forest. The total number of oribatid species found in the Czech Republic reach 599. Altogether 383 oribatid species were found in territory of South Bohemia and 206 species in the Bohemian Forest.

family: Hypochthoniidae

Hypochthonius rufulus C.L. Koch, 1835: Rokytská Slat' peat bog: 27, Novohůrecká Slat' peat bog: 31, 33, 39, 40, Chalupská Slat' peat bog: 53, Malá Niva peat bog: 58, 59, 60, 61, 63.

family: Brachychthoniidae

Brachychthonius berlesei Willmann, 1928: Rokytská Slat' peat bog: 16, 20, Malá Niva peat bog: 65, 66, 67.

Eobrachychthonius borealis Forsslund, 1942: Chalupská Slat' peat bog: 46.

*** *Liochthonius alpestris* (Forsslund, 1958): Luzenská Slat' peat bog: 12, Rokytská Slat' peat bog: 13, 19, 20, 22, Novohůrecká Slat' peat bog: 32, 33, Malá Niva peat bog: 58, 59, 61, 65, 67.

*** *Liochthonius brevis* (Michael, 1888): Luzenská Slat' peat bog: 8, Rokytská Slat' peat bog: 13, 14, 16, Novohůrecká Slat' peat bog: 33, 35, Chalupská Slat' peat bog: 44, 46, 47, 48, 57, Malá Niva peat bog: 58, 60, 61, 65.

*** *Liochthonius horridus* (Sellnick, 1928): Luzenská Slat' peat bog: 1, 8, Rokytská Slat' peat bog: 13, Chalupská Slat' peat bog: 44, 49.

*** *Liochthonius hystericinus* (Forsslund, 1942): Luzenská Slat' peat bog: 1, Rokytská Slat' peat bog: 26, Novohůrecká Slat' peat bog: 33, Chalupská Slat' peat bog: 57.

*** *Liochthonius perfusorius* Moritz, 1976: Luzenská Slat' peat bog: 3, 10, Rokytská Slat' peat bog: 17, 28, Novohůrecká Slat' peat bog: 30, 33, 34, 38, 40, Chalupská Slat' peat bog: 43, 44, 57, Malá Niva peat bog: 58, 59, 60.

*** *Mixochthonius pilosetosus* (Forsslund, 1942): Rokytská Slat' peat bog: 14, 20, Novohůrecká Slat' peat bog: 32, 40.

Neobrachychthonius marginatus (Forsslund, 1942): Chalupská Slat' peat bog: 46, 47.

Sellnickochthonius cricoides (Weis-Fogh, 1948): Luzenská Slat' peat bog: 1, Rokytská Slat' peat bog: 13, Chalupská Slat' peat bog: 46, 54, Malá Niva peat bog: 65.

* *Sellnickochthonius honestus* (Moritz, 1976): Rokytská Slat' peat bog: 13.

*** *Sellnickochthonius immaculatus* (Forsslund, 1942): Rokytská Slat' peat bog: 20, Novohůrecká Slat' peat bog: 32, 39, Malá Niva peat bog: 69.

Sellnickochthonius zelawaiensis (Sellnick, 1928): Luzenská Slat' peat bog: 1, 7, 8, Rokytská Slat' peat bog: 13, 14, 19, 20, Novohůrecká Slat' peat bog: 32, 35, 39, Chalupská Slat' peat bog: 44, 54, 55, Malá Niva peat bog: 61, 65, 66, 67.

*** *Synchthonius crenulatus* (Jacot, 1938): Luzenská Slat' peat bog: 7.

family: Phthiracaridae

Atropacarus (Atropacarus) striculus (C.L. Koch, 1836): Luzenská Slat' peat bog: 1, 2, 3, 7, 8, 9, 10, Rokytská Slat' peat bog: 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 26, 27, Novohůrecká Slat' peat bog: 29, 30, 31, 32, 33, 35, 36, 38, 39, 40, Chalupská Slat' peat bog: 42, 43, 44, 46, 47, 48, 49, 50, 53, 54, 55, Malá Niva peat bog: 58, 59, 60, 61, 63, 64, 65, 67, 68.

Hoplophthiracarus pavidus (Berlese, 1913): Luzenská Slat' peat bog: 1, 2, 3, 7, 8, Rokytská Slat' peat bog: 17, 19, 20, 21, 22, 23, Novohůrecká Slat' peat bog: 39, 40, Chalupská Slat' peat bog: 42, 43, 53, 54, 55, 56, Malá Niva peat bog: 65, 66, 67, 68.

Steganacarus (Steganacarus) applicatus (Sellnick, 1920): Novohůrecká Slat' peat bog: 29.

family: Euphthiracaridae

Euphthiracarus cribrarius (Berlese, 1904): Novohůrecká Slat' peat bog: 32, 33, 39, Chalupská Slat' peat bog: 49,

- 55, Malá Niva peat bog: 58, 59, 63, 64, 65, 66, 68.
Euphthiracarus monodactylus (Willmann, 1919): Rokytská Slat' peat bog: 14, Chalupská Slat' peat bog: 44, 46, 47, 48, 49.
Rhysotritia ardua (C.L. Koch, 1841): Luzenská Slat' peat bog: 1, 7, 8, 9, Rokytská Slat' peat bog: 16, 26, 27, Novohůrecká Slat' peat bog: 32, 33, 35, 36, 37, 38, 39, 40, Chalupská Slat' peat bog: 44, 49, 50, 54, 55, Malá Niva peat bog: 58, 59, 60, 61, 63, 64, 65, 66, 67, 68.
- family: Eulohmanniidae
Eulohmannia ribagai Berlese, 1910: Rokytská Slat' peat bog: 14, 24, Novohůrecká Slat' peat bog: 29, Malá Niva peat bog: 65.
- family: Nothridae
Nothrus pratensis Sellnick, 1928: Luzenská Slat' peat bog: 1, 2, 3, 7, 9, Rokytská Slat' peat bog: 15, 16, 19, 20, 22, 23, 24, 27, Novohůrecká Slat' peat bog: 32, 33, 39, Chalupská Slat' peat bog: 42, 53, 54, 55, Malá Niva peat bog: 64, 65, 66, 67, 68.
Nothrus silvestris Nicolet, 1855: Rokytská Slat' peat bog: 13, 15, 24, Novohůrecká Slat' peat bog: 35, 38, Chalupská Slat' peat bog: 44, 46, 47, 48, 49, 50, Malá Niva peat bog: 58.
- family: Camisiidae
Camisia biurus (C.L. Koch, 1839): Luzenská Slat' peat bog: 8, Rokytská Slat' peat bog: 15, 16, Novohůrecká Slat' peat bog: 32, 36, 38, 39, Chalupská Slat' peat bog: 44, 46, 47, 48, 49, 50, 51, Malá Niva peat bog: 61, 67.
Camisia horrida (Hermann, 1804): Chalupská Slat' peat bog: 52.
Camisia lapponica (Trägårdh, 1910): Luzenská Slat' peat bog: 8, Rokytská Slat' peat bog: 15, 24, 26, Novohůrecká Slat' peat bog: 35, 38, Chalupská Slat' peat bog: 43, 44, 48, 50.
Heminothrus longisetosus Willmann, 1925: Chalupská Slat' peat bog: 47, 48, 49.
Platynoethrus peltifer (C.L. Koch, 1839): Luzenská Slat' peat bog: 1, 3, 4, 7, 8, 9, Novohůrecká Slat' peat bog: 29, 33, 39, 40, Malá Niva peat bog: 60.
- family: Trhypochthoniidae
Trhypochthoniellus longisetosus (Berlese, 1904): Luzenská Slat' peat bog: 2, 12, Rokytská Slat' peat bog: 21.
Trhypochthonius cladonicolus (Willmann, 1920): Luzenská Slat' peat bog: 7.
- family: Mucronothridae
*** *Mucronothrus nasalis* (Willmann, 1929): Luzenská Slat' peat bog: 10, Rokytská Slat' peat bog: 28.
- family: Malaconothridae
Malaconothrus monodactylus (Michael, 1888): Luzenská Slat' peat bog: 1, 2, 3, 7, 9, 10, Rokytská Slat' peat bog: 15, 16, 17, 19, 20, 22, 23, 26, 27, Novohůrecká Slat' peat bog: 29, 30, 31, 32, 38, 39, 40, Chalupská Slat' peat bog: 43, 50, 53, 57, Malá Niva peat bog: 58, 59, 60, 61, 63, 68.
Trimalaconothrus foveolatus Willmann, 1931: Luzenská Slat' peat bog: 3, 5, 9, 10, 11, 12, Rokytská Slat' peat bog: 18, 19, 21, 22, 28, Novohůrecká Slat' peat bog: 30, Chalupská Slat' peat bog: 41, 42, 43, 53, 56, Malá Niva peat bog: 60.
Trimalaconothrus maior (Berlese, 1910): Luzenská Slat' peat bog: 2, 4, 5, 10, 11, 12, Rokytská Slat' peat bog: 18, 19, 21, Novohůrecká Slat' peat bog: 30, Chalupská Slat' peat bog: 41, 42, 53, 56.
*** *Trimalaconothrus sculptus* Knülle, 1957: Luzenská Slat' peat bog: 2, 3, Rokytská Slat' peat bog: 23.
* *Trimalaconothrus vietsi* Willmann, 1925: Rokytská Slat' peat bog: 19, 21.
- family: Nanhermanniidae
Nanhermannia coronata Berlese, 1913: Luzenská Slat' peat bog: 1, 2, 3, 4, 7, 8, 9, 10, Rokytská Slat' peat bog: 13, 15, 16, 17, 19, 20, 22, 23, 24, 26, 27, 28, Novohůrecká Slat' peat bog: 29, 30, 31, 32, 33, 35, 36, 37, 38, 39, 40, Chalupská Slat' peat bog: 43, 44, 47, 49, 50, 53, 55, 57, Malá Niva peat bog: 58, 59, 60, 63, 64, 65, 66, 67, 68.
*** *Nanhermannia sellnicki* Forsslund, 1958: Rokytská slat: 13.
- family: Hermannidae
Hermannia convexa (C.L. Koch, 1839): Malá Niva peat bog: 59, 60, 61, 63.
Hermannia gibba (C.L. Koch, 1839): Luzenská Slat' peat bog: 7, 8, Rokytská Slat' peat bog: 13, 14, 15, 16, 24, 26, 27, Novohůrecká Slat' peat bog: 31, 32, 36, 39, Chalupská Slat' peat bog: 44, 46, 47, 48, 49, 50, 51, 52, Malá Niva peat bog: 58.
- family: Damaeidae
*** *Adamaeus onustus* (C.L. Koch, 1841): Malá Niva peat bog: 61.
Belba compta (Kulczynski, 1902): Rokytská Slat' peat bog: 24, Chalupská Slat' peat bog: 50.
Belba pseudocorynopus Märkel et Meyer, 1960: Rokytská Slat' peat bog: 13, 15, 26, Chalupská Slat' peat bog: 46,

49, 50.

Damaeobelba minutissima (Sellnick, 1920): Rokytská Slat' peat bog: 13, 15, 24, 26, Chalupská Slat' peat bog: 48, 50.

*** *Metabelba rhodendorfi* Bulanova-Zachvatkina, 1965: Novohůrecká Slat' peat bog: 35.

Porobelba spinosa (Sellnick, 1920): Novohůrecká Slat' peat bog: 35, 36, Chalupská Slat' peat bog: 46, 47.

Spatiodamaeus verticillipes (Nicolet, 1855): Chalupská Slat' peat bog: 44, 46, 47, 48, 49.

family: Cepheidae

Cepheus cepheiformis (Nicolet, 1855): Rokytská Slat' peat bog: 16, Novohůrecká Slat' peat bog: 31, 36, 37, Chalupská Slat' peat bog: 43, Malá Niva peat bog: 61, 64, 65.

Cepheus dentatus (Michael, 1888): Chalupská Slat' peat bog: 49.

*** *Tritegaeus bisulcatus* Grandjean, 1953: Malá Niva peat bog: 61.

family: Eremaeidae

Eueremaus oblongus (C.L. Koch, 1835): Rokytská Slat' peat bog: 25, Chalupská Slat' peat bog: 47.

Eueremaus silvestris (Forsslund, 1957): Chalupská Slat' peat bog: 46.

family: Liacaridae

Adoristes ovatus (C.L. Koch, 1839): Malá Niva peat bog: 61.

*** *Adoristes poppei* (Oudemans, 1906): Rokytská Slat' peat bog: 14, Novohůrecká Slat' peat bog: 29, 33, Chalupská Slat' peat bog: 43, 46, 47.

Liacarus coracinus (C.L. Koch, 1841): Luzenská Slat' peat bog: 8, Rokytská Slat' peat bog: 13, 15, 26, 27, Novohůrecká Slat' peat bog: 29, Chalupská Slat' peat bog: 44, 46, 47, 48, 49, Malá Niva peat bog: 58, 66, 67.

family: Astegistidae

Cultroribula bicultrata (Berlese, 1905): Chalupská Slat' peat bog: 47.

family: Metrioppiidae

Ceratoppia bipilis (Hermann, 1804): Chalupská Slat' peat bog: 57.

Ceratoppia sexpilosa Willmann, 1938: Luzenská Slat' peat bog: 9, Rokytská Slat' peat bog: 15, 16, 27, Novohůrecká Slat' peat bog: 30, 32, 39, Chalupská Slat' peat bog: 54, Malá Niva peat bog: 59.

family: Carabodidae

Carabodes areolatus Berlese, 1916: Rokytská Slat' peat bog: 14, 25, Novohůrecká Slat' peat bog: 37, Chalupská Slat' peat bog: 47, 49, 50, 51, 52, Malá Niva peat bog: 62, 63, 65.

Carabodes labyrinthicus (Michael, 1879): Luzenská Slat' peat bog: 6, 8, 9, Rokytská Slat' peat bog: 13, 25, Novohůrecká Slat' peat bog: 31, 32, 33, 34, 35, 36, 37, 39, 40, Chalupská Slat' peat bog: 45, 46, 47, 48, 49, 50, 51, 52, Malá Niva peat bog: 58, 59, 62, 63, 69.

Carabodes marginatus (Michael, 1884): Luzenská Slat' peat bog: 3, 7, 8, Rokytská Slat' peat bog: 13, 15, 24, 26, Novohůrecká Slat' peat bog: 31, 32, 33, 35, 36, 37, 38, 39, Chalupská Slat' peat bog: 43, 46, 47, 48, 49, 50, 51, Malá Niva peat bog: 58, 61, 62, 63, 64, 65, 67.

Carabodes ornatus Štorkán, 1925: Novohůrecká Slat' peat bog: 31, 35, 37, Chalupská Slat' peat bog: 46, 48, 49, Malá Niva peat bog: 58, 62.

Carabodes rugosior Berlese, 1916: Rokytská Slat' peat bog: 13, 14, 15, 16, 24, 26, Novohůrecká Slat' peat bog: 35, 36, 37, 38, 39, 40, Chalupská Slat' peat bog: 47, 48, 49, 50, Malá Niva peat bog: 58, 59, 61.

Carabodes subarcticus Trägårdh, 1902: Rokytská Slat' peat bog: 13, 15, Chalupská Slat' peat bog: 48.

*** *Carabodes tenuis* Forsslund, 1953: Rokytská Slat' peat bog: 13.

family: Tectocepheidae

Tectocepheus sarekensis Trägårdh, 1910: Novohůrecká Slat' peat bog: 30, Chalupská Slat' peat bog: 42.

Tectocepheus velatus (Michael, 1880): Luzenská Slat' peat bog: 1, 2, 7, 8, Rokytská Slat' peat bog: 13, 14, 15, 16, 20, 24, 26, 27, Novohůrecká Slat' peat bog: 29, 30, 31, 32, 35, 36, 37, 38, 39, 40, Chalupská Slat' peat bog: 43, 44, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 57, Malá Niva peat bog: 58, 60, 61, 63, 64, 65, 66, 67, 68.

family: Oppiidae

Berniniella bicarinata (Paoli, 1908): Rokytská Slat' peat bog: 13, Novohůrecká Slat' peat bog: 29, Malá Niva peat bog: 58.

*** *Berniniella sigma* (Strenzke, 1951): Rokytská Slat' peat bog: 13, 17, Chalupská Slat' peat bog: 46, 47.

Dissorhina ornata (Oudemans, 1900): Luzenská Slat' peat bog: 8, Rokytská Slat' peat bog: 15, 16, 26, Novohůrecká Slat' peat bog: 32, 37, Chalupská Slat' peat bog: 43, 49, Malá Niva peat bog: 59, 61, 64, 67.

Lauroppia falcata (Paoli, 1908): Rokytská Slat' peat bog: 13, 14, 24, Chalupská Slat' peat bog: 46, 47, 48, 49, 53, Malá Niva peat bog: 61.

Lauroppia neerlandica (Oudemans, 1900): Luzenská Slat' peat bog: 10, Rokytská Slat' peat bog: 26, Novohůrecká Slat' peat bog: 32, 40, Chalupská Slat' peat bog: 49.
Medioppia obsoleta (Paoli, 1908): Rokytská Slat' peat bog: 24, 28, Chalupská Slat' peat bog: 47, Malá Niva peat bog: 59.
Medioppia subpectinata (Oudemans, 1900): Rokytská Slat' peat bog: 13, 14, 15, 16, 20, 24, 25, 26, 27, Chalupská Slat' peat bog: 44, 46, 47, 48, 49, 50, 54, Malá Niva peat bog: 58.
Microppia minus (Paoli, 1908): Rokytská Slat' peat bog: 13, 14, 15.
Oppiella nova (Oudemans, 1902): Luzenská Slat' peat bog: 2, 7, 8, 9, Rokytská Slat' peat bog: 13, 14, 15, 16, 19, 20, 21, 22, 23, 24, 26, 27, 28, Novohůrecká Slat' peat bog: 29, 30, 31, 33, 35, 38, 39, 40, Chalupská Slat' peat bog: 41, 42, 44, 45, 46, 47, 48, 49, 50, 51, 53, 57, Malá Niva peat bog: 58, 59, 60, 61, 63.
*** *Quadroppia paolii* Woas, 1986: Rokytská Slat' peat bog: 13, 14.
*** *Ramusella (Ramusella) clavipectinata* (Michael, 1885): Rokytská Slat' peat bog: 17, 19, 20.
Ramusella (Insculptoppia) insculpta (Paoli, 1908): Rokytská Slat' peat bog: 26.

family: Suctobelbidae

*** *Suctobelba regia* Moritz, 1970: Chalupská Slat' peat bog: 46, 48.
Suctobelba trigona (Michael, 1888): Novohůrecká Slat' peat bog: 35, 36, Chalupská Slat' peat bog: 46, 47, 48, 49, 51, 54, Malá Niva peat bog: 58, 59.
Suctobelbella falcata (Forsslund, 1941): Luzenská Slat' peat bog: 7, 8, Rokytská Slat' peat bog: 13, 14, 15, 24, Novohůrecká Slat' peat bog: 31, 32, 35, 38, 39, 40, Chalupská Slat' peat bog: 44, 46, 47, 48, 49, 50, 54, 55, Malá Niva peat bog: 58, 61, 63, 64, 65, 66, 67, 68.
*** *Suctobelbella latirostris* (Strenzke, 1950): Chalupská Slat' peat bog: 55.
Suctobelbella longirostris (Forsslund, 1941): Luzenská Slat' peat bog: 1, 2, 3, 7, 8, 9, Rokytská Slat' peat bog: 13, 14, 15, 20, 24, 26, 27, Novohůrecká Slat' peat bog: 31, 32, 34, 35, 38, 39, Chalupská Slat' peat bog: 43, 46, 47, 48, 49, 50, 55, Malá Niva peat bog: 58, 59, 60, 61, 62, 63, 65, 66, 67.
Suctobelbella palustris (Forsslund, 1953): Novohůrecká Slat' peat bog: 29, Chalupská Slat' peat bog: 48, 57.
Suctobelbella sarekensis (Forsslund, 1941): Luzenská Slat' peat bog: 9, Rokytská Slat' peat bog: 24, Novohůrecká Slat' peat bog: 32, Chalupská Slat' peat bog: 46, 48, 49, Malá Niva peat bog: 58, 60, 61, 66.
*** *Suctobelbella similis* (Forsslund, 1941): Luzenská Slat' peat bog: 7, 8, Rokytská Slat' peat bog: 13, 24, Novohůrecká Slat' peat bog: 33, Chalupská Slat' peat bog: 47, 48, 49, 50, 51, Malá Niva peat bog: 58.
Suctobelbella subcornigera (Forsslund, 1941): Luzenská Slat' peat bog: 1, 8, 9, Rokytská Slat' peat bog: 13, 15, 20, 24, 26, 27, Chalupská Slat' peat bog: 44, 46, 47, 48, 49, 54, Malá Niva peat bog: 58, 61, 62, 63, 64, 67.

family: Autognetidae

Autognetia parva Forsslund, 1947: Chalupská Slat' peat bog: 48.

family: Caleremaeidae

Caleremaeus monilipes (Michael, 1882): Rokytská Slat' peat bog: 14, 15, Novohůrecká Slat' peat bog: 32, 35, 36, 37, 38, 39, Chalupská Slat' peat bog: 46, 47, 48, 49, 51, Malá Niva peat bog: 58, 59, 61, 63.

family: Thyrisomidae

Banksinoma lanceolata (Michael, 1885): Luzenská Slat' peat bog: 9, 10, 11, Rokytská Slat' peat bog: 19, 20, Novohůrecká Slat' peat bog: 30, 32, 33, 38, 40, Chalupská Slat' peat bog: 43, 44, 50, 57, Malá Niva peat bog: 65, 66, 67, 68.

family: Hydrozetidae

Hydrozetes lacustris (Michael, 1882): Luzenská Slat' peat bog: 5, Rokytská Slat' peat bog: 18, 21, Chalupská Slat' peat bog: 56.

family: Limnozetestidae

*** *Limnozetes rugosus* (Sellnick, 1923): Luzenská Slat' peat bog: 5, 12, Rokytská Slat' peat bog: 18, 21, 22.
Limnozetes sphagni (Michael, 1880): Luzenská Slat' peat bog: 4, 5, 10, 11, 12, Rokytská Slat' peat bog: 13, 16, 17, 18, 19, 20, 21, 22, 28, Novohůrecká Slat' peat bog: 30, 33, 40, Chalupská Slat' peat bog: 41, 42, 43, 53, 56, Malá Niva peat bog: 60.

family: Cymberemaeidae

Cymberemaeus cymba (Nicolet, 1855): Novohůrecká Slat' peat bog: 34, Chalupská Slat' peat bog: 48.

family: Micreremidae

Micreremus brevipes (Michael, 1888): Rokytská Slat' peat bog: 15, Novohůrecká Slat' peat bog: 33, 34, Chalupská Slat' peat bog: 45.

family: Licneremaeidae

Licnereмаeus licnophorus (Michael, 1882): Chalupská Slat' peat bog: 46, 47.

family: Scutoverticidae

*** *Scutovertex sculptus* Michael, 1879: Rokytská Slat' peat bog: 15.

family: Scheloribatidae

Hemileius initialis (Berlese, 1908): Luzenská Slat' peat bog: 1, 3, 8, 10, Rokytská Slat' peat bog: 15, 16, 23, 24, 26, Novohůrecká Slat' peat bog: 32, 33, 35, 36, 38, 39, 40, Chalupská Slat' peat bog: 44, 47, 49, 50, 51, 54, 55, Malá Niva peat bog: 58, 59, 60, 61, 64, 65, 67.

*** *Liebstadia longior* (Berlese, 1908): Luzenská Slat' peat bog: 6, Rokytská Slat' peat bog: 25, Chalupská Slat' peat bog: 45, 47, 52, Malá Niva peat bog: 69.

Scheloribates laevigatus (C.L. Koch, 1835): Luzenská Slat' peat bog: 1, 3, 7, Rokytská Slat' peat bog: 13, 16, 20, 27, Novohůrecká Slat' peat bog: 30, 32, 35, 36, 37, 38, 39, 40, Chalupská Slat' peat bog: 46, 47, 51, 52, 53, 54, 56, 57.

Scheloribates latipes (C.L. Koch, 1844): Novohůrecká Slat' peat bog: 31, Chalupská Slat' peat bog: 45, 46, 47, 51, 52, 53, 54, Malá Niva peat bog: 62, 64.

family: Oribatulidae

Eporibatula rauschenensis (Sellnick, 1908): Novohůrecká Slat' peat bog: 34, 36, 39, Chalupská Slat' peat bog: 47.

Oribatula tibialis (Nicolet, 1855): Rokytská Slat' peat bog: 13, 15, Novohůrecká Slat' peat bog: 35, 36, Chalupská Slat' peat bog: 44, 46, 47, 48, Malá Niva peat bog: 59, 61, 64, 65.

Phauloppia coineaui Trávě, 1961: Luzenská Slat' peat bog: 6, Rokytská Slat' peat bog: 25, Novohůrecká Slat' peat bog: 33, 34, 39, Chalupská Slat' peat bog: 45, 47, 48, 52, Malá Niva peat bog: 59, 62, 69.

Phauloppia lucorum (C.L. Koch, 1841): Luzenská Slat' peat bog: 6, Novohůrecká Slat' peat bog: 39, Malá Niva peat bog: 69.

family: Parakalummidae

*** *Neoribates aurantiacus* (Oudemans, 1914): Novohůrecká Slat' peat bog: 37.

*** *Neoribates roubali* (Berlese, 1910): Chalupská Slat' peat bog: 47, 49, 51, 52, Malá Niva peat bog: 62, 63.

family: Chamobatidae

Chamobates borealis (Trägårdh, 1902): Luzenská Slat' peat bog: 7, 8, Rokytská Slat' peat bog: 13, 14, 15, 16, 26, Novohůrecká Slat' peat bog: 29, 31, 32, 35, 36, 37, 38, 40, Chalupská Slat' peat bog: 44, 49, 54, 55, Malá Niva peat bog: 58, 59, 61.

family: Ceratozetidae

Ceratozella thienemanni (Willmann, 1943): Chalupská Slat' peat bog: 47, 48, 49, 50.

Ceratozetes parvulus Sellnick, 1922: Luzenská Slat' peat bog: 1, 2, 3, 7, 9, 10, Rokytská Slat' peat bog: 21, 22, 23, Malá Niva peat bog: 64, 68.

Diapterobates humeralis (Hermann, 1804): Luzenská Slat' peat bog: 8, 12, Rokytská Slat' peat bog: 15, 24, 26, Novohůrecká Slat' peat bog: 32, Chalupská Slat' peat bog: 44, 46, 47, 48, 49, 50, 51, Malá Niva peat bog: 61.

Edwardzetes edwardsii (Nicolet, 1855): Luzenská Slat' peat bog: 8, 9, Rokytská Slat' peat bog: 15, 26, Novohůrecká Slat' peat bog: 35, Chalupská Slat' peat bog: 50.

Fuscozetes setosus (C.L. Koch, 1839): Luzenská Slat' peat bog: 3, 7, 8, Rokytská Slat' peat bog: 13, 14, 15, 24, 26, Novohůrecká Slat' peat bog: 31, 32, 33, 36, 39, 40, Chalupská Slat' peat bog: 44, 46, 47, 48, 50, 51, 55, Malá Niva peat bog: 58, 63.

Melanozetes meridianus Sellnick, 1928: Luzenská Slat' peat bog: 1, 2, 3, 4, 8, 9, 12, Rokytská Slat' peat bog: 16, 22, Chalupská Slat' peat bog: 47, 48, Malá Niva peat bog: 64, 65, 66, 67, 68.

Trichoribates rotundatus Willmann, 1939: Novohůrecká Slat' peat bog: 39, 40, Chalupská Slat' peat bog: 54, 55.

family: Phenopelopidae

Eupelops acromios (Hermann, 1804): Luzenská Slat' peat bog: 8, Malá Niva peat bog: 69.

*** *Eupelops nepotulus* (Berlese, 1916): Luzenská Slat' peat bog: 6.

Eupelops plicatus (C.L. Koch, 1836): Luzenská Slat' peat bog: 3, Rokytská Slat' peat bog: 15, 16, 24, 27, Novohůrecká Slat' peat bog: 30, 32, 33, 39, 40, Chalupská Slat' peat bog: 53, Malá Niva peat bog: 59, 61, 66, 69.

Eupelops torulosus (C.L. Koch, 1839): Rokytská Slat' peat bog: 13, 24, 26, Novohůrecká Slat' peat bog: 39.

family: Oribatellidae

*** *Oribatella berlesesi* (Michael, 1898): Novohůrecká Slat' peat bog: 29, Chalupská Slat' peat bog: 52.

family: Tegoribatidae

** *Lepidozetes singularis* Berlese, 1910: Luzenská Slat' peat bog: 6, Rokytská Slat' peat bog: 15, Malá Niva peat bog: 39.

bog: 69.

family: Achipteriidae

Achipteria coleoprata (Linnaeus, 1758): Rokytská Slat' peat bog: 13.

Parachipteria willmanni van der Hammen, 1952: Chalupská Slat' peat bog: 53, 54, 55.

family: Galumnidae

Galumna obvia (Berlese, 1913): Chalupská Slat' peat bog: 53, 54, 57, Malá Niva peat bog: 60, 61.

Pergalumna nervosa (Berlese, 1914): Rokytská Slat' peat bog: 15, 16, 20, 27, Novohůrecká Slat' peat bog: 31, 32,

39, Chalupská Slat' peat bog: 48, 54, 55, 57, Malá Niva peat bog: 59, 60, 61, 63, 64, 65.

Pilogalumna tenuiclava (Berlese, 1908): Chalupská Slat' peat bog: 53, 56.

IMPORTANT ORIBATID SPECIES RECORDS

Sellnickochthonius honestus (Moritz, 1976) is a species distributed in Europe, described in "Weiswasser" Germany. It was recorded from Denmark, Great Britain, Germany, Romania, Spain, and European part of Russia so far. Record in litter of waterlogged spruce forest in Rokytská Slat' peat bog is new for the fauna of the Czech Republic.

Trimalaconothrus vietsi Willmann, 1925 is a hygrophilous species distributed in the Central Europe (Poland, Germany, Switzerland), North Europe (Sweden), Eastern Europe (European part of Russia), Caucasus, and Azerbaidzhan. This is a new record in the fauna of the Czech Republic.

Lepidozetes singularis Berlese, 1910 is a species with a Holarctic distribution, recorded in Central Europe (Slovakia, Moravia, Poland, Austria, Germany, Hungary), South Europe (Italy, Spain), North Europe (Sweden, Finland), East Europe (Belorussia, Ukraine, Romania, Crimea, European part of Russia), West and Central Siberia, Mongolia, Russian Far East, Japan, Alaska, and Canada. This species has not been recorded on the territory of China, Central Asia and USA. This is a new record in the fauna of Bohemia. In Moravia it was recorded in Děvín in the Pavlovské Vrchy hills (KUNST 1968, SMRŽ & STARÝ 1995) and in Malá Kotlina, Hrubý Jeseník Mts. (STARÝ 2005a).

Trimalaconothrus sculptus Knülle, 1957 is a hygrophilous to tyrophilous species distributed in Central Europe (Germany, Bohemia, Hungary) described in "Osengerge" in Germany (KNÜLLE 1957). Probably a rare species living in wet soils, mosses and litter of peat bogs and wetlands. This is the second record in the fauna of the Czech Republic, where it was found hitherto in Brouskův mlýn in South Bohemia (STARÝ 2005b). It was found in the sample from wet bog moss and lichen in the Luzenská and Rokytská Slat' peat bogs.

Trhypochthonius cladonicolus (Willmann, 1920) is a hygrophilous species distributed in the Western part of Palaearctic Region as far as Central Siberia. It was hitherto found in the Central, Western and Eastern Europe (Slovakia, Czech Republic, Poland, Austria, Germany, Netherlands, Denmark, Norway, Sweden, Finland, Belorussia, Estonia, Ukraine, Crimea, European part of Russia), in the Balkan Peninsula (Macedonia, Slovenia), and in Western and Central Siberia. The record in Luzenská Slat' peat bog in lichens on the spruce stem is the third one in the fauna of Bohemia, where this species was recorded in the Bohemian Forest localities Mrtvý luh and Chalupská Slat' peat bogs (STARÝ 1988). In Moravia it was found in the Rejvíz peat bog (WILLMANN 1933) and in the locality Kamzičník (MIKO 1986) in the Hrubý Jeseník Mts.

Nanhermannia sellnicki Forsslund, 1958 is a silvicolous species, which prefers deciduous forests, distributed probably in the whole Palaearctic Region. This species has not been recorded on the territory of China and in Central Asia. The record from spruce litter in the marginal part of the Rokytská Slat' peat bog is the second one in the fauna of the Czech Republic, from where it was found only in the locality Dlouhá Ves in the Bohemian Forest

foothills (STARÝ 1994).

Limnozetes rugosus (Sellnick, 1923) is a tyrophilous species which prefers submerged bog mosses of sloughs and peat lake margins. It is distributed in Western, Central, North, and Eastern Europe to the Ural Mts. The records in the Luzenská Slat' and Rokytská Slat' peat bogs reflect autecology of this species. In Bohemia this species was hitherto recorded in the Důl Bílého Labe (MATERNA 1999) in the Krkonoše Mts., in Moravia in the Rejvíz peat bog in the Hrubý Jeseník Mts. (WILLMANN 1933).

Neoribates aurantiacus (Oudemans, 1914) is a species distributed in the whole Holarctic Region. In Bohemia this species was recorded in the locality Sítiny (KUNST 1968) and in the Pohořské Rašeliňiště peat bog in the Novohradské Hory Mts. (STARÝ 1994), in Moravia it was found only in the Velká Kotlina in the top region of the Hrubý Jeseník Mts. (MIKO 1986). The record in the Novohřecká Slat' peat bog in dwarf pine litter corresponds with ecological pretension of the species and is new for the fauna of the Bohemian Forest.

FAUNISTIC CHARACTERISTICS OF STUDIED ORIBATID MITE COMMUNITIES

The results of PCA ordination analysis are shown in Fig.1. The separation in accordance with studied localities was not identified. In total 55 oribatid species were found in the Luzenská Slat' peat bog, 86 species in the Roklanská Slat' peat bog, 68 species in the Novohřecká Slat' peat bog, 92 species in the Chalupská Slat' peat bog, and 66 oribatid species in the Malá Niva peat bog. On the other hand the collected soil samples were comparatively distinctly separated along studied biochore and habitats, which were repeated on the most areas of studied localities. Five groups of samples in the ordination space were indicated. Group A was created by samples collected from lichens of branches and stems of trees. In comparison with other studied biochors this habitats is characterised by inconstant humidity, which can vary during seasons as well as during the day. Important species for this biochore are *Phauloppia coineaui* and *P. lucorum*, both lichenophagous. The distinct preferen-

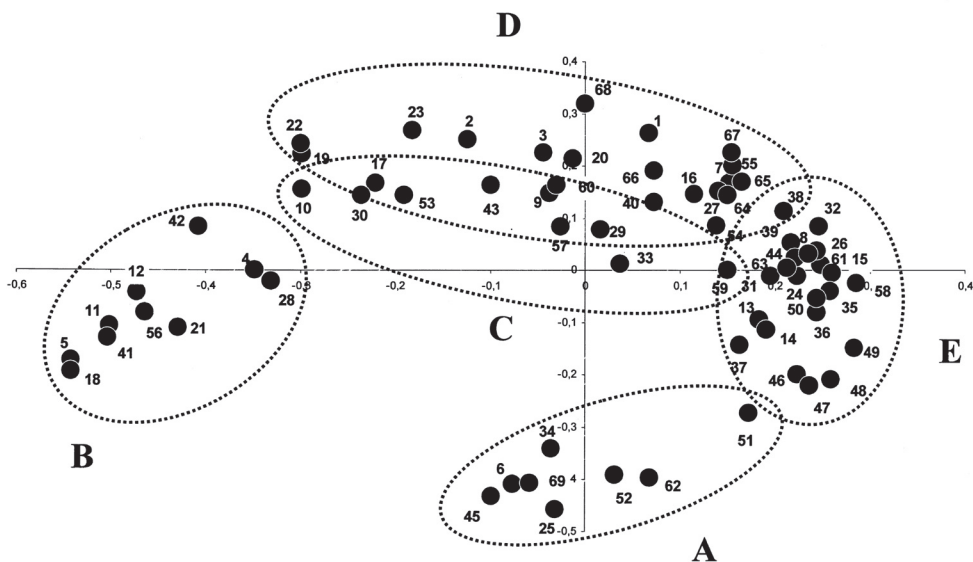


Fig. 1. Graph of PCA ordination analysis of samples collected in studied peat bogs in the National Park (used numbers agree with numbering in the list of collected samples).

ce of those habitats was indicate for the species *Carabodes labyrinthicus*, but this is also abundant in coniferous litter of dwarf pine and Norway spruce. The most similar group for this one is group E composed by samples from coniferous litter growths of dwarf pine and waterlogged spruce forest on marginal part of the bogs. The reason of this conspicuous similarity is that the lichens are distributed above all in the stems and branches of dwarf pines, Norway spruce, and other coniferous trees. These species living in the litter of the trees can colonise lichens by active migration over stems and vice versa lichenophagous oribatids from lichens can fall to the litter layers.

Group B is the second distinctly separated species group composed by species inhabited submerged bog mosses in the sloughs and marginal parts of peat bog lakes, where the soil humidity reached a maximal value. The important species of this specific habitats are: *Hydrozetes lacustris*, *Limnozetes sphagni*, *L. rugosus*, *Trhypochthoniellus longisetosus*, *Trimalaconothrus maior*, and *T. foveolatus*, which are highly hygrophilous species.

Separation of other groups is not so distinct. The group C composed chiefly by moist samples of sledge and niggerhead rhizosphere appear to be the closest related one to the group B. This group is not distinctly separated from the group D represented drier samples from raised peat cops. Both of these groups (C, D) are distinctly elongated from right to left side of the ordination space. This fact reflects gradient of soil moisture in these samples. Important species of the group C are: *Hermannia convexa*, *Liochthonius perfusorius*, *Eupelops plicatus*, *Malaconothrus monodactylus*, and *Nanhermannia coronata*. Important species of the group D are: *Banksinoma lanceolata*, *Sellnickochthonius zelawaensis*, *Hoplophthiracarus pavidus*, *Nothrus pratensis*, and *Suctobelbella longirostris*.

The last but the most complicated group E was composed best of all by samples from coniferous litter and decaying wood of dwarf pine growth and waterlogged spruce forests. Important species of those habitats are: *Caleremaeus monilipes*, *Euphthiracarus monodactylus*, *Hermannia gibba*, *Liacarus coracinus*, *Liochthonius brevis*, *Micropopia minus*, *Suctobelbella falcate*, etc.

The euryecious species with broad ecological valence are important and abundant component of the Bohemian Forest peat bog oribatid fauna. These species living in the most habitats in central as well as marginal parts of peat bogs and belong to the most dominant species composing the basic component of the community structure, especially in habitats without extreme humidity value. We can consider in this species group following oribatid species: *Atropacarus striculus*, *Oppiella nova*, and *Tectocephus velatus*.

Peat bogs in the Bohemian Forest are specific biotops characterised by extreme microclimatic conditions, which are limited for oribatid occurrences. The small thermal conductivity, especially in plots without tree floor, causes overheating of upper surface soil layers during the day, which of course are not heated to the deep and emits too little heat during the night. These facts resulted in small vertical heat zoning and maximal heat fluctuation in thin surface soil layer especially during the summer season and relatively low surface temperature during the cold season and caused by distinct shortening of oribatid activity. This very specific microenvironment satisfied exclusively only few tyrphobiont species strictly living on peat bogs.

We can classify following species as tyrphobionts recorded from studied localities: *Mucronothrus nasalis* and *Camisia lapponica*. More abundant group appears to be tyrphophilous species, which find optimal conditions on peat bog, but they occur also in similar conditions in other biotops than peat bogs. As tyrphophilous we can consider following species: *Malaconothrus monodactylus*, *Nanhermannia coronata*, *Trhypochthoniellus longisetosus*, and all species of the genus *Trimalaconothrus*.

Acknowledgements. This investigation was supported by the research plan of the ISS ASCR (AVOZ60660521) "Relationships between the structure and function of decomposer food web in soil". I am grateful to L. Papáčková (Průhonice) for advice and help with selection of the studied localities and for description of plant species and communities, to J. Rusek (České Budějovice) for help with sampling, and to V. Bosak (Sacramento, USA) for language improvement and to anonymous referees for their constructive comments.

REFERENCES

- KNÜLLE W., 1957: Die Verteilung der Acari: Oribatei im Boden. *Zeitschrift für Morphologie und Ökologie der Tiere*, 46: 397–432.
- KUNST M., 1968: Roztoči nadřádu Oribatei ČSSR 1–6 díl [Mites of the superorder Oribatei Czechoslovakia, 1–6 Vol.], Ms., Dissertation thesis, Charles University, Prague, 1548 pp. (Zoological library of the Faculty of Sciences, Charles University, Prague) (in Czech).
- MATERNA J., 1999: Pancířníci (Acari: Oribatida) saxicolních nárostů mechů a lišejníků v Krkonoších [Oribatid mites (Acari: Oribatida) of saxicolous mosses and lichens in the Krkonoše Mts.]. *Opera Corcontica*, 36: 181–193 (in Czech).
- MIKO L., 1986: Příspěvek k poznání fauny pancířníků (Acari, Oribatei) Hrubého Jeseníku [Contribution to the knowledge of oribatid fauna (Acari, Oribatei) from the Hrubý Jeseník Mts.]. *Časopis Slezského Muzea*, (A), 35: 273–283 (in Czech).
- PODANI J., 1994: *Multivariate analysis in ecology and systematics*. SPB Academic Publishing, The Hague, 316 pp.
- SMRŽ J. & STARÝ J., 1995: Acarina: Oribatida. In: Terrestrial Invertebrates of the Pálava Biosphere Reserve of UNESCO, ROZKOŠNÝ R. & VAŇHARA J. (eds.) *Folia Facultatis Scientiarum Naturalium Universitatis Masarykianae Brunensis, Biologia*, 92: 79–85.
- STARÝ J., 1982: Pancířníci (Oribatei) vybraných šumavských vrchovišť [Oribatid mites (Oribatei) of some Šumava peat bogs]. Ms., diploma thesis, Charles University, Prague, 243 pp. (Zoological library of the Faculty of Sciences, Charles University, Prague) (in Czech).
- STARÝ J., 1988: Pancířníci (Acari: Oribatida) některých vrchovišť na Šumavě, jižní Čechy [Oribatid mites (Acari: Oribatida) of some Šumava peat bogs]. *Sborník Jihočeského Muzea v Českých Budějovicích, přírodní vědy*, 28: 99–107 (in Czech).
- STARÝ J., 1994: Pancířníci (Acari: Oribatida) vybraných lokalit Jižních Čech a Střední Moravy [Oribatid mites (Acari: Oribatida) of some localities in South Bohemia and Central Moravia]. *Sborník Jihočeského Muzea, přírodní vědy*, 34: 81–90 (in Czech).
- STARÝ J., 2000a: Seznam pancířníků (Acari: Oribatida) Čech, Česká republika [List of oribatid mites (Acari: Oribatida) of the Bohemia, Czech Republic]. *Sborník Přírodovědného klubu v Uherském Hradišti*, 5: 129–154 (in Czech).
- STARÝ J., 2000b: Seznam pancířníků (Acari: Oribatida) Moravy, Česká republika [List of oribatid mites (Acari: Oribatida) of the Moravia, Czech Republic]. *Sborník Přírodovědného klubu v Uherském Hradišti*, 5: 155–173.
- STARÝ J., 2005a: Contribution to knowledge of oribatid mites (Acari: Oribatida) from the Malá Kotlina, Hrubý Jeseník Mts., Czech Republic. *Časopis Slezského Muzea*, (A), 54: 25–34.
- STARÝ J., 2005b: Pancířníci (Acari: Oribatida) NPR Brouskův mlýn, Jižní Čechy [Oribatid mites (Acari: Oribatida) of the Nature Reserve Brouskův mlýn, South Bohemia]. *Sborník Jihočeského Muzea, přírodní vědy*, 45: 112–122 (in Czech).
- ŠTORKÁN K., 1925: Příspěvky ku známostem o českých oribatidech (Acarina). Předběžná práce k monografii [Contributions to the knowledge on Czech oribatid mites (Acarina). Preliminary report]. *Spisy přírodovědecké fakulty UK Praha*: 1–42.
- WEIGMANN G. & KRATZ W., 1982: Die deutschen Hornmilbenarten und ihre ökologische Charakteristik. *Zoologische Beiträge*, 27: 459–489.
- WILLMANN C., 1933: Acari aus dem Moosebruch. *Zeitschrift für Morphologie und Ökologie der Tiere*, 27: 373–383.

Received: 19 September 2005

Accepted: 2 December 2005

Poznámky

Poznámky

Poznámky